REPORT
ON THE
1988
INDUSTRIAL DIRECT
DISCHARGES
IN ONTARIO

DECEMBER 1989

Ontario
Environment
Environnement
Jim Bradley, Minister/ministre

ERRATA

REPORT ON THE 1988 INDUSTRIAL DIRECT DISCHARGES IN ONTARIO

Pg. 5 Third paragraph in the line beginning with "The number of companies meeting guidelines" should read - "... on a yearly basis was 124 (73.8%),".

Pg. 10 Section 4.1 - under the heading, "For the Years 1988 and 1987 The Compliance Status is as follows:" should read

	1988	
	YES	NO
Annual averages	124	44

Pg. 10 Number of companies with limits set by Control Order or Certificate of Approval for 1988", should read "55".

Pg. 11 Second paragraph in the line beginning with "The 1988 results showed...", should read "... individual monthly limits 885 times out of 7388 monitored, or 12.0%...".

Pg. 12 Table 1
For Atlas Steel the ANNUAL COMPLIANCE should read "NO". Under the PARAMETERS IN EXCEEDANCE column should read RSP(4), and add CDUT(2).

Pg.12 For B.F. Goodrich the MONTHLY COMPLIANCE should read "YES". Under the PARAMETERS IN EXCEEDANCE column delete PPUT(1).

Pg. 13 For Canadian-Oxy-Durez, the ANNUAL COMPLIANCE should read "NO". Under the PARAMETERS IN EXCEEDANCE column should read PHENOL(9).

Pg. 13 For Cyanamid Canada Inc. (Niagara Falls), the MONTHLY COMPLIANCE should read "NO". Under the PARAMETERS IN EXCEEDANCE column add RSP(1).

Pg. 13 For Cyanamid Canada Inc. Welland Plant, the MONTHLY COMPLIANCE should read "NO". Under the PARAMETERS IN EXCEEDANCE column add PPUT(1).

Pg. 14 For E.B. Eddy Forest Products Ltd. (Espanola), the MONTHLY COMPLIANCE should read "YES" and the ANNUAL COMPLIANCE should read "YES". Under the PARAMETERS IN EXCEEDANCE column delete RSP (11**).

Pg. 14 For E.B. Eddy Forest Products Ltd. (Ottawa), the MONTHLY COMPLIANCE should read "NO" and the ANNUAL COMPLIANCE should read "NO". Under the PARAMETERS IN EXCEEDANCE column, add RSP (11**).

Pg. 16 For Kimberly-Clark of Canada Ltd. (St. Catharines), the ANNUAL COMPLIANCE should read "YES".

Pg. 20 For Washington Mills Ltd. Niagara Falls, the ANNUAL COMPLIANCE should read "YES". Under the PARAMETERS IN EXCEEDANCE column should read RSP(5).

Pg. A-36A The actual result for PHOSPHOR UNF.TOT. for November should read "26.0". Under the TOTAL EXCEEDANCES column for PHOSPHOR add the number "1".

ISSN #: 0838-519X

REPORT ON THE
1988
INDUSTRIAL DIRECT DISCHARGES
IN ONTARIO

Report prepared by:
Water Resources Branch

DECEMBER 1989

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EXECUTIVE SUMMARY

The 1988 Industrial Direct Discharge Report is the annual update of the status of all industrial direct dischargers in Ontario. This annual report includes:

- monthly average loadings, yearly average loadings and effluent limits
- a description of the various effluents limits as requirements (by a legal document) or guidelines (a desirable objective)
- actual loadings versus limits, on a monthly and yearly basis
- a discussion on compliance
- fish toxicity test results where available
- a description of the company self-monitoring and the Ministry audit program
- a table of new Ministry enforcement actions
- tables of remedial actions for sources not meeting limits criteria
- a progress report on the Municipal Industrial Strategy for Abatement - MISA Program
- a description of the various sources and their effluent loadings
- trend analysis for three industry groups (petroleum refining, pulp and paper mills, primary steel producers)

Seventeen new sources have been included in this report. Six sources were dropped from this report since four are now discharging to a municipal sewer system and two sites had no discharges in 1988.

The number of companies meeting guidelines and requirements on a yearly basis was 122 (72.6%), out of 168 sources reporting in 1988. In 1987, 105 (66.9%) sources out of 157 were below the limits. On a monthly basis, 77 (45.8%) companies met all limits. In 1987, 62 (39.5%) met monthly limits.

The program report on MISA activities is highlighted by the promulgation of the Monitoring Regulations for the Organic Chemical Manufacturing; Iron and Steel, Pulp and Paper, the Inorganic Chemical and Metal Mining Sectors in April, May, June, July and August 1989, respectively.

REPORT ON INDUSTRIAL DIRECT DISCHARGES

ONTARIO 1988

1.0 INTRODUCTION

The Ontario Ministry of the Environment (MOE) report on Industrial Direct Discharges for the year 1988 continues to include information published on sources in the 1987 report. Thus, part of the information in this report meets the requirements of Article VI 1(c) of the 1978 Great Lakes Water Quality Agreement (G.L.W.Q.A.). The Agreement states that an annual report, which includes compliance schedules and the status of compliance with monitoring and effluent restrictions, shall be provided to the International Joint Commission, (IJC). The portions of the Report related to the G.L.W.Q.A and thus to the IJC are identified (Appendix C and E).

Additional industrial sources are included in this report, over and above those in 1987. The effluent loadings and loading limits for 168 individual industrial plants are contained in this report, whereas in 1987 the number of sources reported was 157. Of the sources reported in 1987, 151 are reported herein, since four sources now discharge to a municipal sewer and two sources had no discharges in 1988. More industrial sources will be reported in future reports; not all the direct discharges that MOE deals with have been entered into the Industrial Monitoring Information System (I.M.I.S).

The majority of the province's 12,000 industrial plants are not included in this report because they discharge into municipal sewers, and the process wastewaters are treated by municipal sewage treatment plants.

For 1988, the actual monthly and annual average pollutant loadings and flows, as well as guidelines or requirements are shown for each source. These requirements may be legal limits (Control Order, Certificate of Approval, Requirement and Direction, Federal Regulation), while the guidelines may be the Ministry's industrial concentration guideline objectives, Federal Guidelines or Best Professional Judgement criteria. In this report, the self-monitoring data for conventional pollutants and the inclusion of trace contaminants are presented as in last years report. Program reviews made by the Ministry include comparisons of effluent limits by various regulatory agencies. Such a comparison is included in the trend analysis section for the Petroleum Refineries.

Additional information is provided in the compliance section and in Appendix A.

2.0 INDUSTRIAL DISCHARGES - 1988 DATA

The 1988 report contains information similar to that presented in the 1987 Report. The monthly averages as well as the annual loadings and flows are reported. The bulk of this report consists of the Wastewater Discharge Summary contained in Appendix A. The Appendix summary sheets are arranged in alphabetical order by company name. Sources discharging to major drainage basins are noted in Appendix C.

The following information is presented for each discharge source:

1) The name of the discharger and the municipality in which the plant is located.

2) Its MISA sector name.

3) The receiving water body.

4) A description of the industrial activity.

5) Effluent quality as related to the industrial activity.

6) Effluent treatment equipment and systems.

7) The nature of the flow--continuous or intermittent; the means of discharge--surface, open pipe, submerged diffuser, or drainage ditch, and the number of discharge points.

8) Comments on the effluent in particular where the actual pollutant value has exceeded the limit which may be a guideline or a requirement.

9) The Ministry of the Environment Region and the District Office that deals with the discharger.

10) The average monthly effluent flow discharged by the source.

11) The average monthly pollutant load discharged by the source and limits which may be a guideline, a best professional judgement value, a legal number (set by Control Order, Requirement and Direction, Certificate of Approval or Federal Regulation). Some discharges are seasonal and thus twelve monthly results are not available. Some pollutants are measured on a quarterly or semi-annual basis.

12) Data on pollutants which are monitored but not limited.

13) Ministry fish toxicity data for some industries. Self-monitoring toxicity data were provided by the Petroleum Refining Sector.

14.) A compliance summary statement for each discharger based on the number of individual monthly limits exceeded out of the total number of monthly parameters monitored with limits.

3.0 EFFLUENT LIMITS

The Ontario Ministry of the Environment presently employs a variety of measures to limit water pollution, including voluntary measures, formal programs, Control Orders, Requirements and Direction and Certificates of Approval. The Municipal and Industrial Strategy for Abatement (MISA) will set legally enforceable limits across the province (see Section 3.5).

The implementation of pollution control is a co-operative federal/provincial endeavour. Federal Guidelines set minimum acceptable (see Appendix F) national objectives for existing plants, while Regulations prescribe national effluent limitations for new and expanded plants for several industrial sectors. The only exception is the federal Regulation for chlor-alkali plants which applies to both existing and new facilities.

Ontario has agreed, under the Federal-Provincial Accord for Environmental Protection, to adopt provincial pollution control requirements which are at least as stringent as the national objectives. Since most Ontario plants are in the "existing" category, federal Guidelines apply to several industries in this report. Currently, these federal effluent Guidelines and Regulations (year of promulgation) apply to: Pulp and Paper (1971), Petroleum Refineries (1973), Metal Mining (1977), Mercury Cell Chlor-alkali Plants (1977), Metal Finishing (1977) and Meat and Poultry Processing Plants (1977). It is an offence to violate a regulation limit while under the Fisheries Act Regulations and Guidelines. While it is not considered an offence to exceed the guideline, there may be potentially an infraction of the general prohibition under the act, prohibiting the deposit (discharge) of deleterious substances into waters frequented by fish. Federal Guidelines are, in fact, statements that indicate which practices will be considered necessary by the Federal government to meet the intent of the Fisheries Act.

3.1 Legal Requirements

Legally enforceable Control Orders under Section 6 of the Environmental Protection Act may be issued to any existing plant. Control Orders define abatement actions and compliance dates by which these actions must be completed. Legally enforceable Requirements and Directions may also be issued under Section 51 of the Ontario Water Resources Act. The requirements for issuance of these documents are different in the two Acts.

As described above, for some sources there are federal Regulation limits under the Fisheries Act. Certificates of Approval (C's of A) for sewage works are issued under the Ontario Water Resources Act. In the past, the C of A was an approval to install pollution control equipment with the expected effluent quality, used as the basis for design, sometimes shown in the C of A. Recently, new sewage work approvals have begun to include effluent limits which are legally enforceable, since the required performance of the treatment system is explicitly defined.

3.2 Effluent Guideline Limits

Historically, for most sources, Ontario has taken an effluent guidelines approach in setting provincial requirements. There are actually two ways in which the Ministry sets effluent guidelines. On an across-the board- basis applying the Industrial Guidelines approach, and on a site-specific basis based on limits calculated from Ontario's Provincial Water Quality Objectives which are receiving water objectives.

The former approach was incorporated into a guidance document entitled "Industrial Guidelines", and was based initially on experience with municipal sewage treatment systems. It was presumed that treated industrial effluents should have the same pollutant concentrations as treated municipal effluent. However, since industrial effluents are quite different from municipal effluents in regard to specific pollutants, pollutant concentration and volume flow, application of the same treatment technology did not result in similar treated effluent concentrations. Industrial wastewater effluents in many cases would require dilution by cooling water, etc. to meet the effluent concentrations. Guidelines allow for these differences where similar treatment technology has been installed. Appendices F-3, F-4 and F-5 presents the guideline values used in the majority of cases in this report to measure acceptable effluent quality.

Some new plants which recycle and reuse water to a much greater extent than have limits set on a loading basis (i.e. kilograms discharged per day) rather than on an effluent concentrations basis.

Ontario also uses "the water quality approach" (the Ministry of the Environment's Blue Book: Water Management: Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment. November 1978. Revised May 1984.) in setting effluent limits. For contaminants which are not considered to be persistent toxic contaminants, every river or lake has a definable assimilation (self-purification) capacity.

Water quality considerations take precedence when degradable discharges exceed the assimilative capacity of the receiving waters, but are within the limits set by federal Guidelines or Regulations. In these cases more stringent requirements, based on the limited assimilative capacity, are used to set effluent loading limits. Some plants employ secondary treatment facilities to reduce biodegradable discharges; some of these biodegradable compounds may be toxic but relatively non-persistent. Some contaminants are much more amenable to biodegradation than others

3.3 Best Professional Judgement Limit

Where there are no legal limits, MOE District Office staff, may set a guideline based on Best Professional Judgement. This incorporates a review of the manufacturing technology, effluent treatment technology and past performance.

Where innovative technology is being tried, Best Professional Judgement limits and/or conditions may be set out in a Certificate of Approval. These limits would then be legally enforceable.

In summary, parameter specific limits for the various discharges are set in several forms: pollutant concentrations (milligrams per litre), pollutant loadings (kilograms per day), load per unit of production (kilograms related to production rate), and radioactive loadings (becquerels per litre per day). These limits may be based on any of the above rationales.

3.4 Toxicity

Effluent in the Province have been assessed for toxicity using a static lethality test employing rainbow trout. The Ministry's approach to toxicity monitoring is quantitative, ie. we do not determine only whether an effluent is toxic or not toxic but measure how toxic it is.

The test usually measures the concentration of effluent that will kill 50% of the test fish in four days (96 hr LC50). The data presented in the discharge summaries are the results of toxicity tests performed in the MOE Rexdale Laboratories or through contract with Lakehead University in Thunder Bay and Booth Aquatic Research in Guelph. A more detailed discussion of toxicity appears in Section 9.0 - Notes on Toxicity, page 55.

4.0 COMPLIANCE AND EXCEEDANCES

The term 'compliance' in the context of this report indicates that the effluent data recorded in this report are not exceeding the limits for a given parameter, location and time. There may indeed have been violations of Ministry Acts, Regulations and control documents, and ensuing prosecutions during any period in which an industry may have been shown as being in compliance. Spills, for example, may cause violations which are not reported in this document but are compiled separately.

Non-compliance is currently expressed in terms of the number of times in the calendar year that any discharger exceeds a legal requirement.

However, only the exceedances of legally enforceable limits in Control Orders, Requirement and Direction, and Certificates of Approval could directly result in prosecutions under exisiting legislation. The guidelines in and of themselves are not directly legally enforceable - consequently a separate review is provide of guideline limit exceedances.

The Ministry will continue to expect industrial dischargers to meet any numerical limits including guidelines until they are replaced by the technology based requirements of the Municipal-Industrial Strategy for Abatement (MISA) being phased in for major industrial sectors over the next few years.

4.1 Compliance With Chemical Guidelines or Requirements

The calculated actual monthly average and the calculated annual average were compared to the pollutant guidelines or requirements. Table 1 - Compliance Summary (pages 12 to 20) summarizes the comparisons for the point sources in this report.

For the years 1988 and 1987 the compliance status is as follows:

Sources Reported 1988 - 168 1987 - 157	1988		1987	
	YES	NO	YES	NO
Annual averages	122	46	105	52
Monthly averages*	77	91	62	95

* These figures include sources whose Requirements are 'thirty consecutive operating day rolling averages'.

All sources:	1988	1987
Companies instituting controls	45	41
Control order requiring further reduction beyond current levels.	3	6
Number of companies with limits set by Control Order or Certificate of Approval.	52	37

For companies discharging into the Great Lakes Basin, the compliance status is as follows:

Sources Reported 1988 - 140 1987 - 132	1988		1987	
	YES	NO	YES	NO
Compliance with annual averages	103	37	93	39
Compliance with monthly averages*	65	75	56	76

* These figures include sources whose Requirements are 'thirty consecutive operating day rolling averages'.

In Table 1, parameters which have been exceeded by a source are identified. For companies not meeting discharge criteria, refer to the company source sheets in Appendix A for comments.

The 1988 results showed that, overall industrial dischargers exceeded individual monthly limits 890 times out of 7388 monitored, or 12.1% of the time. This compares with 1987 where dischargers exceeded limits 867 out of 7,311 monitored or 11.9% of the time. In other words, overall compliance is 88.1% in 1987 compared to 87.9% in 1988. Individual monthly compliance for each company is shown on the data sheets in Appendix A.

The word "compliance" as used in this report does not indicate that no contraventions of the legislation and regulations have occurred, but rather that the data recorded in the report do not, in themselves, demonstrate that there have been contraventions.

Table 1 - 1988 COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE		COMPANY INSTITUTING CONTROLS	SEE COMPANY SHEET	CONTROL ORDER REQUIRES FURTHER REDUCTIONS	LIMITS SET BY: *	PARAMETERS IN EXCEEDANCE ( ) DENOTES NUMBER OF MONTHS EXCEEDED (see code key, at end of table)
			MONTHLY	ANNUAL					
Abitibi-Price Inc	Iroquois Falls	A-1	YES	YES				C.O	
Abitibi-Price Inc., Provincial Papers Division	Thunder Bay	A-2	YES	YES				C.O	
Abitibi-Price Inc., Fort William Division	Thunder Bay	A-3	NO	YES		X		C.O	PPUT(4 **), RSP(6) #
Abitibi-Price Inc., Thunder Bay Division	Thunder Bay	A-4	NO	YES	YES	X		C.O	BOD5(6) ##
Agnico Eagle Mines Ltd., Penn Mill	Cobalt	A-5	NO	YES					ASUT(5)
Agnico Eagle Mines Ltd., Refinery	Cobalt	A-6	NO	NO					ASUT(5), CCNAFUR(4), HGUT(6)
Algoma Steel	Sault Ste. Marie	A-7	NO	NO	YES	X	YES	C.O	RSP(6), SOLEXT(10)
American Standard, Div. of Wabco	Cambridge	A-8	NO	YES					PH(1)
Atlas Steel Company	Welland	A-9	NO	YES		X			RSP(3).
Ault Foods Ltd	Winchester	A-10	YES	NO				C. of A	RSP(1)
Beaver Wood Fibre Comapny	Thorold	A-11	YES	YES					
B. F. Goodrich	Niagara Falls	A-12	NO	YES					PPUT(1).
Blackstone Industrial Products Ltd.	Stratford	A-13	NO	YES					CUUT(1), PH(3), ZNUT(8)
Boise-Cascade Canada Ltd	Fort Frances	A-14	YES	YES				C. of A.	
Boise-Cascade Canada Ltd.	Kenora	A-15	YES	YES				C. of A.	
BTL Speciality Resins	Belleville	A-16	NO	NO					PHNOL(9)
CAMECO (form. Eldorado Resources Ltd.)	Blind River	A-17	YES	YES					
CAMECO (form. Eldorado Nuclear Ltd.)	Port Granby	A-18	NO	YES					ASUT(3), PH(3)
CAMECO (form. Eldorado Nuclear Ltd.)	Port Hope	A-19	YES	YES					
CAMECO (form. Eldorado Nuclear Ltd.)	Welcome	A-20	NO	YES					ASUT(1)

* C.O - Control Order; C. of A. - Certificate of Approval; #Based on a 30 day rolling average.

** In some cases where both Control Order or Certificate of Approval limits and guideline limits apply to the same company, guideline exceedances only are highlighted by (n **).

## The six reported BOD5 exceedances are based on one of the two Control Order Limits. However the company must exceed both daily limits on a 30 day rolling average.

Table 1 - 1988 COMPLIANCE SUMMARY ...continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE		COMPANY INSTITUTING CONTROLS	SEE COMPANY SHEET	CONTROL ORDER REQUIRES FURTHER REDUCTIONS	LIMITS SET BY: *	PARAMETERS IN EXCEEDANCE ( ) DENOTES NUMBER OF MONTHS EXCEEDED (see code key at end of table)
			MONTHLY	ANNUAL					
Campbell Soup Co. Ltd	St Marys	A-21	NO	NO	YES			C. of A	BOD5(11), RSP(11)
Campbell's Wellington Mushroom Farm	Wellington	A-22	NO	NO	YES				PPUT(3), RSP(2)
Canadian Canners Ltd	St Davids	A-23	YES	YES					
Canadian Oxy-Durez	Fort Erie	A-24	NO	YES	YES				PHNOL(8)
Canadian Pacific Forest Products Ltd	Dryden	A-25	YES	YES				C. of A	
Canadian Pacific Forest Products Ltd	Thunder Bay	A-26	YES	YES	YES			C.O	
CANAMAX Ltd. Bell Creek Mine	Porcupine	A-27	NO	NO					ASUT(5), CCNAFUR(4), HGLT(6)
CASCO Ltd.	Cardinal	A-28	NO	NO	YES			C. of A	RSP(8)
Celanese Canada Ltd	Ernestown Twp	A-29	YES	YES					
Champlain Industries Ltd	Tara	A-30	YES	YES					
CIL Ltd	Cornwall	A-31	NO	NO					RSP(12)
CIL Ltd.	Courtright	A-32	YES	YES					
Cornwall Chemicals Limited	Cornwall	A-33	NO	NO					BOD5(12), RSP(3)
Courtauld Fibres and Courtauld Films	Cornwall	A-34	NO	NO					BOD5(12), RSP(4)
Cyanamid Canada Inc	Niagara Falls	A-35	YES	YES					
Cyanimid Canada Inc. Welland Plant	Welland	A-36	YES	YES				C. of [illegible]	
Denison Mines Ltd.,	Elliot Lake	A-37	NO	YES					CCNAUR(1), RSP(2)
Denison Mines Ltd., Stanrock	Elliot Lake	A-38	YES	YES					
Denison Mines Ltd., Williams Lake	Elliot Lake	A-39	YES	YES					
Detour Lake Mine	Timmins	A-40	NO	YES				C. of A.	CUUT(1)
Dickenson Mine Ltd. (A. W. White Mine)	Balmertown	A-41	NO	YES				C. of A.	ASUT(2)

* C.O - Control Order; C. of A. - Certificate of Approval

** In some cases where both Control Order or Certificate of Approval limits and guideline limits apply to the same company, guideline exceedances only are highlighted by (n **).

Table 1 - 1988 COMPLIANCE SUMMARY ... continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE		COMPANY INSTITUTING CONTROLS	SEE COMPANY SHEET	CONTROL ORDER REQUIRES FURTHER REDUCTIONS	LIMITS SET BY *	PARAMETERS IN EXCEEDANCE ( ) DENOTES NUMBER OF MONTHS EXCEEDED (see code key at end of table)
			MONTHLY	ANNUAL					
Dofasco Inc	Hamilton	A-42	YES	YES					
DOFASCO LTD - Adams Mine	Kirkland Lake	A-43	NO	NO					FEUT(4), RSP(3)
Domtar Chemicals Ltd	Goderich	A-44	NO	NO	YES	X			RSP(12)
Domtar Chemical Group	Orillia	A-45	YES	YES					
Domtar Fine Papers	Cornwall	A-46	YES	YES					
Domtar Fine Papers	St Catharines	A-47	NO	NO	YES	X			BOD5(12)
Domtar Packaging Ltd	Red Rock	A-48	NO	YES				C.O	RSP(2)
Domtar Packaging	Trenton	A-49	NO	YES	YES				BOD5(3), RSP (4)
Domtar Wood Preserving	Trenton	A-50	NO	NO	YES				PHNOL(12)
DOW Chemical Canada Ltd	Sarnia	A-51	YES	YES					
Dupont Canada Inc	Corunna	A-52	YES	YES					
Dupont Canada Inc	Kingston	A-53	YES	YES					
Dupont Canada Inc.	Maitland	A-54	YES	YES					
Eastmaque Gold Mines	Kirkland Lake	A-55	YES	YES				C. of A	
E. B. Eddy Forest Products Ltd.	Espanola	A-56	NO	NO				C.O	RSP(11 **)
E. B. Eddy Forest Products Ltd.	Ottawa	A-57	YES	YES		X		C.O	
ESSO Chemicals Canada Ltd.	Sarnia	A-58	YES	YES					
ESSO Petroleum Canada Ltd.	Sarnia	A-59	YES	YES					
Ethyl Canada Inc.	Corunna	A-60	YES	YES					
Exolon	Thorold	A-61	YES	YES					

*C. O - Control Order C. of A. - Certificate of Approval

** In some cases where both Control Order or Certificate of Approval limits and guideline limits apply to the same company, guideline exceedances only are highlighted by (n **).

Table 1 - 1988 COMPLIANCE SUMMARY ... continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE		COMPANY INSTITUTING CONTROLS	SEE COMPANY SHEET	CONTROL ORDER REQUIRES FURTHER REDUCTIONS	LIMITS SET BY: *	PARAMETERS IN EXCEEDANCE ( ) DENOTES NUMBER OF MONTHS EXCEEDED (see code key at end of table)
			MONTHLY	ANNUAL					
Explosive Technologies International Inc	North Bay	A-62	YES	YES					
Falconbridge Ltd., Nir Rd.	Falconbridge	A-63	NO	YES	YES			C.O	CUUT(1), FEUT(3), NIUT(2), PBUT(1), RSP(1), ZNUT(1)
Falconbridge Ltd., Kidd Creek Mine (Met. Site)	Timmins	A-64	NO	YES					ZNUT(4)
Falconbridge Ltd., Kidd Creek Mines (Mine Site)	Timmins	A-65	NO	YES					ZNUT(3)
Falconbridge Ltd., Lockerby Mine	Onaping	A-66	NO	YES					FEUT(1)
Falconbridge Ltd., Moose Lake WWTP	Onaping Falls	A-67	NO	NO	YES			C.O	CUUT(1), FEUT(5), RSP(1)
Falconbridge Ltd., Onaping Mine	Onaping Falls	A-68	NO	NO	YES				CUUT(1), NIUT(2), PH(1), RSP(1)
Fiberglas	Sarnia	A-69	NO	YES					PHNOL(2)
Fleet Manufacturing Company Ltd.	Fort Erie	A-70	YES	YES					
Ford Motor Company Ltd.	Niagara Falls	A-71	NO	YES		X			RSP(1)
Ford Motor Company Ltd.	Oakville	A-72	NO	NO	YES	X			BOD5(4), PHNOL(5), RSP(4)
Ford Motor Company Ltd.	St Thomas	A-73	NO	YES	YES			C. of A.	BOD5(1), ZNUT(1)
Ford Motor Company Ltd.	Windsor	A-74	NO	NO	YES			C. of A	RSP(12), PHNOL(12 **)
Fraser Inc	Thorold	A-75	NO	YES	YES			C. of A.	RSP (3 **)
Gay Lee Foods Co-op Ltd.	Teeswater	A-76	NO	NO					BOD5(2), RSP(6)
G. E. Plastics Ltd. (form. Borg-Warner Chemicals)	Cobourg	A-77	NO	NO	YES			C. of A.	BOD5(4), PPUT(10), RSP(11)
General Chemical Canada Ltd.	Amherstberg	A-78	YES	YES					
General Motors Company Ltd.	St. Catharines	A-79	NO	YES	YES				PHNOL (1)
Giant Yellowknife Mines - Pamour (C. of A. effective May 5, 1988)	Timmins	A-80	NO	YES				C. of A.	FEUT(2), FEUT(1 **)

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Table 1 - 1988 COMPLIANCE SUMMARY ... continued

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Giant Yellow Knife Mines Ltd., - Schumacher (C. of A. effective Aug 9, 1988)	Timmins	A-81	NO	YES	YES			C. of A	HCN(1 **), CUUT(2 **)
Golden Shield Resources - Kerr Division (C. of A. effective Oct 31, 1988)	Virginiatown	A-82	NO	NO		X		C. of A	ASUT(2), CCNAUR(2), CUUT (1), NIUT(2), ASUT(6 **), CCNAUR(8 **), NIUT(8 **), RSP(1 **), (FEUT(5 **)
Haley Industries	Haley	A-83	NO	NO				C. of A	All parameters exceeded
Inco Ltd., Copper Cliff Nickel Refinery	Copper Cliff	A-84	YES	YES					
Inco Ltd., Copper Cliff Creek Wastewater	Copper Cliff	A-85	NO	YES					CUUT(1), FEUT(4), NIUT(1), ZNUT(1), RSP(1)
Inco Ltd., Crean Hill Mine	Copper Cliff	A-86	NO	YES					PH(1)
Inco Ltd., Frood Stobie Emergency Tailings Area	Copper Cliff	A-87	NO	NO	YES				CUUT(6), FEUT(6), NIUT(6), NNHTUR(1), ZNUT(1), RSP(4), PH(6)
Inco Ltd., Garson Mine	Copper Cliff	A-88	NO	YES		X			NIUT(4), RSP(3)
Inco Ltd., Levack Tailings Area	Copper Cliff	A-89	NO	YES	YES				FEUT(1), PH(1)
Inco Ltd., Nolin Creek Wastewater	Copper Cliff	A-90	NO	YES				C. of A	CUUT(2), FEUT(3)
Inco Metals Ltd.	Pt Colborne	A-91	YES	YES					
International Minerals and Chemicals	Dunnville	A-92	YES	YES		X			
James River-Marathon, Ltd.	Marathon	A-93	YES	YES			YES	C.O	
J. M. Schneider Inc.	Ayr	A-94	YES	YES				C. of A.	
Kimberly-Clark of Canada Ltd.	Huntsville	A-95	YES	YES		X			
Kimberly-Clark of Canada Ltd.	St. Catharines	A-96	NO	NO					BOD5(5)
Kimberly-Clark of Canada Ltd.	Terrace Bay	A-97	NO	YES	YES			C.O	BOD5(5)*
Kraft Foods Ltd.	Ingleside	A-98	NO	NO	YES				BOD5(10), PPUT(11), RSP(10)

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			MONTHLY	ANNUAL					
Lac D Amiante Quebec Ltd - Aquarius Mine	Timmins	A-99	NO	YES	YES			C. of A	RSP(7), PHNOL(3)
Lac Minerals (Macassa Div.)	Kirkland Lake	A-100	YES	YES	YES				
Lac Minerals Ltd - Page Williams Mine	Marathon	A-101	YES	YES				C. of A	
LeFarge Canada Inc	Bath	A-102	YES	YES					
Lake Ontario Cement	Picton	A-103	NO	YES	YES				RSP(3)
MacMillan Bloedel Ltd	Sturgeon Falls	A-104	YES	YES				C.O	
Malette Kraft Pulp and Power	Smooth Rock Falls	A-105	YES	YES				C.O	
Mattabi Mines Ltd.	Kenora District	A-106	NO	YES					FEUT(4), PH(3), ZNUT(4)
McBean Mine Ltd.	Dobie	A-107	NO	NO					HCN(1), FEUT(1)
Minnova Inc. Winston Lake Project	Schreiber	A-108	NO	YES	YES	X		C. of A.	SOLEXT (1), NNH3FR(1), PHNOL (2 **)
Mitsubishi Electronics Canada Inc.	Midland	A-109	YES	YES				C. of A	
Nestle Enterprises Ltd.	Chesterville	A-110	NO	NO				C. of A.	BOD5(5), PPUT(6), RSP(7)
Nitrochem Inc.	Maitland	A-111	NO	NO	YES				NNKUR(12), NNOTUR(8), PH(9)
Noranda Hemlo Gold Inc.	Marathon	A-112	YES	YES				C. of A	
Noranda Inc., Lyon Lake Division	Ignace	A-113	YES	YES					
Noranda Mines Ltd. GECO DIV.	Manitouwadge	A-114	NO	NO					NNHTFR(12), RSP(1)
Northern Wood Preservers Ltd.	Thunder Bay	A-115	NO	NO	YES			C. of A.	PHNOL (11), RSP (1)
Norton Company	Niagara Falls	A-116	YES	YES					
NOVACOR Ltd.	Sarnia	A-117	NO	NO	YES				RSP(9)
Ogilvie Mills Ltd.	Thunder Bay	A-118	NO	NO	YES			C.O	BOD5(6), RSP(12 **)

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			MONTHLY	ANNUAL					
Omstead Foods Ltd.	Wheatley	A-119	NO	NO	YES				BOD5(5), NNHTFR(3), PPUT(3), RSP(7)
Ontario Hydro	Atikokan	A-120	YES	YES					
Ontario Hydro, Bruce NPGS - STP	Tiverton	A-121	YES	YES					
Ontario Hydro, Bruce NPGS - A + B	Tiverton	A-122	YES	YES					
Ontario Hydro, Bruce NPGS - Heavy Water	Tiverton	A-123	YES	YES					
Ontario Hydro (Lakeview)	Toronto	A-124	YES	YES					
Ontario Hydro (Lennox)	Toronto	A-125	YES	YES					
Ontario Hydro, Lambton TGS	Courtright	A-126	NO	YES					TEMP RISE (3), TEMP MAX (2)
Ontario Hydro TGS (Ash lagoon)	Nanticoke	A-127	YES	YES					
Ontario Hydro TGS (Cooling Water)	Nanticoke	A-128	YES	YES					
Ontario Hydro, (Pickering Stations A and B)	Pickering	A-129	YES	YES					
Ontario Hydro	Thunder Bay	A-130	YES	YES					
ORENCO (Ontario Rendering)	Dundas	A-131	NO	YES					RSP(2)
Petro-Canada Inc. (Clarkson)	Mississauga	A-132	NO	YES					PHNOL(1)
Petro-Canada Inc. (Trafalgar)	Oakville	A-133	NO	NO	YES	X	X	X	RSP(11)
Petrosar Limited.	Corunna	A-134	YES	YES					
Placer-Dome Mine (Campbell Red Lake Mine)	Balmertown	A-135	NO	YES				C. of A.	ASUT(2)
Placer-Dome Mines	South Porcupine	A-136	YES	YES					
Polysar Ltd.	Sarnia	A-137	YES	YES					
Quebec and Ontario Paper Company Ltd.	Thorold	A-138	YES	YES				C.O	

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Table 1 - 1988 COMPLIANCE SUMMARY ... continued

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			MONTHLY	ANNUAL					
Rexwood Products Ltd.	New Liskeard	A-139	NO	YES					BOD5(5) PHENOL(6), RSP(5)
Rio Algom Ltd., Panel Mill	Elliot Lake	A-140	YES	YES					
Rio Algom Ltd., Quirke Mill	Elliot Lake	A-141	NO	NO					FEUT(8)
Rio Algom Ltd., Stanleigh Mill	Elliot Lake	A-142	YES	YES					
Rohm and Haas	Morrisburg	A-143	YES	YES					
Rothsay Ltd	Rothsay	A-144	NO	YES	YES			C. of A	NNHTFR(2), RSP(2), SSIDA(1)
Shell Canada Products Limited	Corunna	A-145	YES	YES					
Sherman Mine	Temagami	A-146	YES	YES					
Sherwood Poultry Farms	Dundas	A147	NO	NO	YES				NNHTFR(3), PPUT(3) RSP (2)
Spruce Falls Power and Paper Ltd.	Kapuskasing	A-148	YES	YES		X		C.O	
Stanchem Ltd.	Cornwall	A-149	NO	NO					BOD5(11), RSP(12)
Stanley Hardware Div. of Stanley	New Hamburg	A-150	NO	NO	YES		YES	C. of A. & C.O	FTFLOW(1), CCNAJR(1), CRUT(4), ZNUT(12), CUUT(4), NIUT(10), RSP(11)
St. Marys Paper Inc.	Sault Ste. Marie	A-151	NO	YES		X		C.O	RSP (1)
Steetley Talc (Luzinac ltd. as of Dec. 1/88)	Timmins	A-152	NO	NO					RSP (2)
Stelco Inc. Hilton Works	Hamilton	A-153	YES	YES					
Stelco Inc., Lake Erie Works	Nanticoke	A-154	NO	YES				C. of A.	PBUT(1), RSP (1 ** for sewage lagoon effluent)
Stelco Page Hersey Works	Welland	A-155	YES	YES					
Stelco Welland Tube Works	Welland	A-156	NO	YES	YES				RSP(1)
Strathacona Paper Company Ltd.	Camden East Twp.	A-157	YES	YES				C.O	
Suncor Inc., Sunoco Division	Sarnia	A-158	YES	YES					

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Table 1 - 1988 COMPLIANCE SUMMARY ...continued

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			MONTHLY	ANNUAL					
Teck-Corona Inc	Marathon	A-159	YES	YES				C. of A	
Tend-R-Fresh Div. of Maple Leaf Mills	Petersburg	A-160	NO	NO	YES			C. of A	BOD5(3), NNHTFR(8), PPUT (7), RSP(6), SOLEXT (2)
Texaco Canada Inc	Port Credit	A-161	YES	YES					
Texaco Canada Inc.	Jarvis	A-162	YES	YES					
The Algoma Steel Corporation Ltd (Ore Div.)	Wawa	A-163	NO	YES					PH(4), RSP(2)
The Canadian Salt Company Ltd	Windsor	A-164	YES	YES					
Trent Valley Paperboard Mills	Glen Miller	A-165	NO	NO		X		C. of A.	RSP(12)
Washington Mills Ltd	Niagara Falls	A-166	NO	NO	YES				RSP(4)
Washington Mills (formerly: Sohio)	Niagara Falls	A-167	YES	YES					
Wickes Manufacturing Co. Ltd.	Windsor	A-168	NO	NO	YES	X			NIUT(8), RSP(12)

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CODE KEY

ASUT	Arsenic (unfiltered total)	NNHTFR	Ammonium (total filtered reactive)
BOD5	Biochemical Oxygen Demand (5 Day)	PBUT	Lead (unfiltered total)
CCNAUR	Cyanide (available, unfiltered reactive)	PHNOL	Phenols
CDUT	Cadmium (unfiltered total)	PPO4UT	Phosphates (unfiltered total)
COD	Chemical Oxygen Demand	PPUT	Phosphorus (unfiltered total)
CRUT	Chromium (unfiltered total)	RA226F	Radium 226 (filtered total)
CUUT	Copper (unfiltered total)	RSP	Residue Particulate (total suspended solids)
FEFT	Iron (filtered total)	SSIDA	Hydrogen sulphide (available)
FEUT	Iron (unfiltered total)	SOLEXT	Solvent extractables
FWTEMP	temperature (maximum)	ZNUT	Zinc (unfiltered total)
NIUT	Nickel (unfiltered total)		
NNH3FR	Ammonia (filtered reactive)		

5.0 ABATEMENT AND REMEDIAL ACTIONS

Table 2 lists the abatement and remedial action taken by the companies following instances of guideline exceedances or non-compliance with legal limits.

For non-compliance with legally enforceable limits, the Ministry's approach is to develop an action plan to return the discharger to compliance. Such a plan could include enforcement measures, abatement negotiations or issuance of Control Orders.

For exceedance of guideline limits, regional abatement staff assess whether the exceedance caused or would likely cause impairment to the receiving waters. If so, then enforcement actions may be initiated as for non-compliance sources above. Otherwise, ministry staff request dischargers to take voluntary abatement measures and/or Ministry staff work together with the company to eliminate the exceedances.

Remedial actions are often complex, involving problem definition, development of approppriate remedial measures, negotiation of abatement plans including public consultation, design, approval, construction and commissioning of works and may extend over several years in some situations.

TABLE 2
REMEDIAL ACTIONS FOR SOURCES IN NON-COMPLIANCE OR EXCEEDANCE OF GUIDELINES

Company	Action
Abitibi-Price Inc. - Fort William Division	Suspended solids exceedances are controlled by pH adjustment system installed in May 1988.
Abitibi-Price Inc. - Thunder Bay Division	The company installed in February 1989, a chemical cooling additive system at the digester to help control BOD_5 loses.
American Standard, Div of Wabco Standard Inc..	The existing WWTP is capable of operating without exceedances. No action required since only one minor pH exceedance (9.8 versus 9.5) likely due to operator error.
Algoma Steel	An amending Control Order was issued on September 23, 1988. A Certificate of Approval for the construction of a dual media filtration plant was issued on January 23, 1989, the scheduled completion date is March 1990. It is expected that this will bring the effluent into compliance for suspended solids and solvent extractables.
Ault Foods Limited.	Company operated under Certificate of Approval for a staged upgrading and extension to the existing sewage treatment facilities. Stage 3 conditions for performance compliance requirements come into effect on January 31,1989. Occurrence report filed for exceedance of suspended solids parameter.
Blackstone Industrial Products. Ltd.	Ministry staff are reviewing discharge criteria for this industry and will be meeting with the company to discuss a need for improved operation and/or improved treatment facilities.
Campbell Soup Co. Ltd.	The sewage treatment plant was upgraded in late 1988. Because of continuing concern over effluent quality, a consultant has been retained to review and assist in optomizing operating procedures, and to consider a possible need for further improvements in the treatment process.
Campbell's Wellington Mushroom Farm	Addition of chemical (alum) for phosphorus removal reinitiated January 1989. Effluent quality compliance achievable based on initial results.

TABLE 2 cont'd
REMEDIAL ACTIONS FOR SOURCES IN NON-COMPLIANCE OR EXCEEDANCE OF GUIDELINES

Company	Action
Canadian Oxy-Durez	Company completed voluntary program involving storm water treatment and process modification to achieve compliance with phenol discharge guideline in March, 1989. Company now in compliance.
CASCO Company	Plant has extended their industrial waste facilities to bring plant into compliance in 1989.
Detour Lake Mine	The company experienced exceedances of discharge criteria for certain metals during the spring run-off. Hydraulic loading also exceeded treatment plant capability. An application for a Certificate of Approval has been submitted to double the size of the existing hydrogen peroxide plant. Project to be completed prior to April 1, 1990.
Dickenson Mines Ltd. (A. W. White Mine)	Fall discharges were slightly in excess of criteria. Discharges are necessary to ensure that retention is available to prevent the release of lethal cyanide levels during fish spawning periods in early spring. Criteria exceedances are being investigated by the company.
Domtar Chemicals Ltd., Sifto Salt Division	Company initiated improvements in 1988 to sump return system which directs contaminants from bleed-off of evaporation back into brine cavern. All potential sources have been identified and directed to the sump. Improved housekeeping measures have also been implemented.
Domtar Fine Papers St. Catharines	Company completed feasibility study of effluent secondary treatment (RBC's) and wastewater diversion to sanitary sewer. Domtar has further submitted a request to conduct a pilot study, incorporating a bio-augmentation process into the existing primary treatment system. Pilot study will take four (4) months to complete. Final treatment option to be selected following completion of pilot study in March, 1990. Application to be submitted for Approval's review in November.
Domtar Packaging Ltd. Red Rock	The exceedances were due to clarifier maintenance. The problem has been fixed and is not expected to reoccur.
Domtar Packaging Trenton	Design of new whitewater storage tank and pulp stock washer for subsequent approval and construction during 1989
Domtar Wood Preserving	Control Order issued in March 1988 requiring company to install stormwater treatment system, stormwater management system and leachate collection system. Certificate of Approval for stormwater treatment system issued in Sept. 1988 and system construction completed and operational in December 1988. C. of A issued Oct. 1988 and system construction completed in Dec. 1988 with exception of pump installation. Pump installation and operation slated for late spring 1989. C. of A. for stormwater management system issued Feb. 1989 with construction slated for early summer 1989.
E.B. Eddy , Ottawa	A new Control Order is being prepared to address BOD5 and suspended solids in conjunction with the MISA regulations.

TABLE 2 cont'd

REMEDIAL ACTIONS FOR SOURCES IN NON-COMPLIANCE OR EXCEEDANCE OF GUIDELINES

Company	Action
Falconbridge Ltd., Kidd Creek Mine Division	Company exceeded suspended solids and zinc discharge criteria in spring due to hydraulic loading. Study presently underway to examine options for increasing settling pond retention time. Application for Certificate of Approval anticipated in early 1990.
Falconbridge Ltd. Nir Road	A test system was constructed in 1988 consisting of a gravel berm lined with filter materal with the design goal being a reduction in particulate iron. To correct the elevated levels which have occurred during spring flows the company is presently preparing a report comparing the last two years of operation to assess the success of the system.
Falconbridge Ltd. - Onaping Mine	Test work at Onaping Pond involving use of flocculants proved unsuccessfull. Falconbridge has extended the curtain in the Pond in 1988, and has undertaken more extensive monitoring of the influent to the pond.
Falconbridge Ltd. Moose Lake Wastewater Treatment System	Treatment facilities to be upgraded in 1989, to meet requirements of new C. of A. Lime treatment (instead of limestone) will be performed as a result of the changes.
Ford Motor Company Niagara Falls	Minor exceedance of guideline, no action warranted. Company exceeded total suspended solids for one month in 1988. Cause not determined, however, no further exceedances to date.
Ford Motor Company Oakville	Company upgraded its chemical pretreatment plant and has been discharging to the sanitary sewer since October, 11, 1988.
Ford Motor Company Ltd. St. Thomas	A consultant has been engaged to upgrade the wastewater treatment plant. Plant design will incorporate methods to reduce zinc levels using best availabe technology. Sludge lagoon decommissioning is to begin in 1989 as the first stage of plant upgrading.
Ford Motor Co. of Canada Ltd., Windsor	Upgrading of the wastewater treatment facilities to improve suspended solids removal, per Certificate of Approval No. 4-0055-87-006 issued on July 3, 1987 has been completed and operation began in September 1988. Monthly average suspended solids concentrations have been reduced from over 50 mg/L early in 1988 to less than 20 mg/L at the end of the year and improved operation is expected to bring the effluent in compliance with suspended solids requirement of 15mg/L.
Fraser Inc.	Company submitted a program in 1988 to reduce overflows and conserve water. Program included process modifications an d was completed in 1989. A new certificate of Approval for an effluent detoxification system will be issued in November, 1989 with installation anticipated in December, 1989. Toxicity of effluent was attributed to chlorine used in bleaching operation. The new Certificate of Approval will have loading requirements fdor aboth BOD_5 and suspended solids. Effluent expected to be in compliance with new Certificate of Approval in 1990.

TABLE 2 cont'd

REMEDIAL ACTIONS FOR SOURCES IN NON-COMPLIANCE OR EXCEEDANCE OF GUIDELINES

Company	Action
Gay Lee Foods Co-op Ltd.	Ministry District staff will be meeting with industry staff to review in detail operating records for exceedance periods for RSP, to determine what action is needed to ensure RSP requirements are consistently met.
G. E. Plastics Canada Ltd.	Company is preparing major plant upgrading and expansion of wastewater treatment facility including effluent filtration.
General Motors of Canada Ltd.	Secondary treatment, RBC's installed in 1988 improving effluent quality from March to December, 1988. However, design-related breakdown occurred early in 1989. RBC's are now repaired and start-up to be completed November/December, 1989. Compliance with Certificate of Approval anticipated for 1990.
Giant Yellowknife Mines Ltd. - Pamour Mine	The company is modifying their tailings discharge strategy to prevent short circuiting, increase settling time and improve suspended solids removal. No amendment to the Certificate of Approval is required.
Golden Shield Resources - Kerr Division	The company has gone into receivership and the mine and mill have been placed in a care and maintenance mode i.e. shutdown for the time being. Discharge criteria and treatment requirements will be discussed with the new owner if the mine operations are restored.
Haley Industries, Haley	Consultant hired to determine best system to meet C. of A. requirements. Company and Ministry to meet in 1989 to discuss options bring the company into compliance.
INCO Ltd. Copper Cliff Creek Wastewater Treatment Plant	A new C. of A., which requires a study for plant expansion, has recently been issued. This C. of A. is now under appeal.
Inco Ltd. Frood Stobie Emergency Tailings Area	The seasonal discharges will be rerouted to the Copper Cliff Treatment system beginning in 1989.
Inco Ltd. Levack Tailings Area	An automatic lime addition system with continuous pH monitoring was installed in November.
INCO Ltd. Nolin Creek Wastewater Treatment Plant	A Certificate of Approval with specifications requiring a study to address the present bypassing situation and assess the need for treatment facility has been issued to the company. The company launched an appeal which is still being processed.
Kimberly Clark of Canada Ltd. St. Catharines	Company conducted pilot study to establish treatment methodolgy to reduce BOD_5 to acceptable limits using aeration. Pilot study concluded aeration would be ineffective. Company requested MOE concurrence for pilot study using bio-augmentation. Pilot study will be conducted over a four (4) month period and be complete in approximately March, 1990. Application to be submitted for Certificate of Approval.
Kimberly-Clark of Canada Ltd. Terrace Bay	Investigation and Enforcement Branch (I.E.B) investigating cause of occurrences. The company began construction of an aerated lagoon in May 1988 that is to be operational by the end of October 1989.

TABLE 2 cont'd
REMEDIAL ACTIONS FOR SOURCES NON-COMPLIANCE OR EXCEEDANCE OF GUIDELINES

Company	Action
Kraft Foods Ltd.	Kraft has submitted plans for approval to upgrade its effluent treatment facilitiy. The first stage of the upgrading, the installation of an anaerobic pre-treatment stage, will be completed in 1989. The C. of A. issued recently and will contain a condition that will require the company to complete a second stage of the upgrading so the effluent will meet strict new requirements set by the Ministry or enter into an agreement with the Township of Osnabruck for a combined treatment facility.
Lac D' Amiante Du Quebec Ltee. - Aquarius Mine	Suspended solids discharge regulated with modified internal tailings management plan to ensure compliance. Phenols exceedances may be attributed to natural background values in tailings basin. An audit program has been established and if high background level are confirmed the Certificate of Approval will be amended to change the phenol criteria requirements.
Lake Ontario Cement	Waterline leaks which created excessive flow found and corrected.
Mattabi Mines Ltd., Sturgeon Lake Area	High flow rates and contaminate concentrations late in 1988 were the result of severe rainfall conditions which exceeded the hydraulic capacity of the treatment system. Problems will end when plant operations cease in 1990.
Minnova Inc. Winston Lake Project	Split sampling by MOE and the company indicates oil and grease problem may be the result of analytical errors. The company installed a temporary pH control system in November 1988 to control ammonia levels. A permanent CO_2 system for ammonia control will be installed in 1989. No known source of phenols. The causes of the exceedances are being investigated by the company and MOE.
Nestle, Chesterville	Company evaluating options to reduce discharges to within legal requirements.
Nitrochem Inc.	The company has applied for a Certificate of Approval to install process equipment which will further reduce the total Kjeldahl Nitrogen. The C. of A. will be issued in 1989.
Noranda Minerals Inc. Geco Division	Larger capacity sludge pumps are to be installed in 1989 to overcome S.S. exceedances. Amendments to the C of A in 1989 will require studies on ways to decrease ammonia levels.
Northern Wood Preservers Inc.	The company changed analytical technique for phenols in October 1988 to correct false results. MOE audit samples show phenols in compliance at all times. In October 1988 the frequency of checking MLSS was increased to better control sludge wasting to correct S.S. exceedances.
NOVACOR Ltd.	Additional control equipment installed and commissioned to address suspended solids problem in 1988. The new control equipment is not achieving design efficencies. Enhancement is ongoing.

TABLE 2 cont'd
REMEDIAL ACTIONS FOR SOURCES NON-COMPLIANCE OR EXCEEDANCE OF GUIDELINES

Company	Action
Ogilvie Mills Ltd.	Production rate was cut to 94% in June 1988 to decrease overloading in the secondary treatment system that caused the BOD exceedances.
Omstead Foods Ltd.	Poor effluent quality occurs primarily during the winter months. At the request of the Ministry an engineering study was carried out to identify specific operational problems contributing to the exceedances and develop remdial actions. Based on the engineering studies, the company submitted an Application for a Certificate of Approval and Pre-Design Report for upgrading the treatment works in May 1988. it is anticipated that a Certificate of Approval for the proposed works, estimated to cost $980,000.00 will be issued in September 1989 with detailed engineering design and construction to follow.
ORENCO (Ontario Rendering)	High suspended solids due to runoff/erosion from fields upstream of sampling point. Sampling procedures are being changed prior to next discharge peirod (seasonal discharge) to better reflect actual effluent quality.
Petro-Canada Products Ltd., Oakville	A major modification to the existing wastewater effluent treatment plant involving additional clarifiers, new dual media filters and aeration basins was completed in September 1989. The modifications should bring this source into compliance.
Placer-Dome Inc. - Campbell Red Lake Mine	Fall discharges were slightly in excess of criteria. Discharges are necessary to ensure that retention is available to prevent the release of lethal cyanide levels during fish spawning periods in early spring. Criteria exceedances are being investigated by the company.
Rothsay, The Rendering Division of Maple Leaf Mills Ltd.	Current C. of A. is for WWTP modifications which are now completed as follows: skimmer bypass prevention, air scrubber water diversion from WWTP to lagoon #1, increased aeration capacity, change in aeration tanks to plug flow, addition of aeration to equalization tank. Effluent quality is expected to improve with these modifications for the discharge season starting in December, 1989.
Sherwood Poultry Farms	Company recently purchased by Maple Leaf Mills Ltd. and new consulting firm retained. Seasonal discharge of effluent to recommence in November, 1989. Company treating lagoon with alum to improve quality. In addition, company to submit an application in November, 1989 for installation of a dissolved air Elotation unit and rotary prescreening unit prior to next discharge season in 1990.

TABLE 2 cont'd
REMEDIAL ACTIONS FOR SOURCES NON-COMPLIANCE OR EXCEEDANCE OF GUIDELINES

Company	Action
Stanley Hardware Div. of Stanley Canada Inc.,	New wastewater treatment plant was completed in August 1989. Preliminary tests show excellent quality effluent.
St. Marys Paper Inc.	The exceedance of the suspended solids requirement was due to start up problems with a new paper machine. No remedial action is required.
Stelco Inc. Lake Erie Works	The existing WWTP is capable of being operated without exceedances. Quicker reporting of monitoring results by the company laboratory has been implemented allowing WWTP operator to respond more quickly to elevated levels. No exceedances have occurred since May, 1988
Stelco Welland Tube Works	Company to install secondary treatment for processed wastewater in 1990. Original application for treatment system was submitted in July, 1989. The application was inadequate and was returned to the company. Stelpipe is redesigning the treatment system. The application is to be submitted in November, 1989
Tend-R-Fresh Div. Maple Leaf Mills Poultry Products Inc.,	Company applied in October 1988 for revision to C. of A issued May 1988, due to downsized production plans; interim measures have achieved effluent compliance since January 1989 of all parameters except ammonium-nitrogen. Company closed down in July 1989.
Trent Valley Paperboard Mills	Suspended solids effluent objective of 140 kg/day set out in Certificate of Approval still under review. Receiving water studies have not identified an effluent impact with respect to BOD. Company preparing submission to demonstrate that exisitng effluent quality is equivalent to that from a mill employing optimized 'Best available Technology'. Company has also engaged a consultant to address toxicity problem.
Washington Mills Ltd., Niagara Falls	Improved maintenance program on silk curtain undertaken by company in early 1989 and has been in compliance since.
Wickes Manufacturing Co. Ltd., Bumper Division	Construction of a new building to house the wastewater treatment works and installation of treatment plant equipment have been completed. Start-up date for the new works was May 12, 1989. A new sewer was constructed by the company in July 1988 to provide access to the nearest City trunk sewer.

5.1 Enforcement Actions

The Ministry of the Environment, Investigations and Enforcement Branch, was formed in 1985. Regional staff refer incidents, etc., to this Branch for investigation and possible follow-up with prosecution. Note that exceedance of a monthly average requirement does not necessarily mean that charges are laid.

Tables 3A lists enforcement activities undertaken during 1988*. Table 3B gives updates of sources reported in the 1987 discharge report..

* NOTE: These statistics relate only to the companies listed in the 1988 Industrial Discharges Report. In some cases the actual offences leading to the activity occurred prior to 1988.

TABLE 3A
ENFORCEMENT ACTIVITIES THAT HAVE GONE TO COURT
INDUSTRIAL DISCHARGES IN 1988

	COMPANY	OFFENCE DATE AND DESCRIPTION	DISPOSITION
1.	Bakelite Thermoset Industries (Belleville)	Nov. 8/85 to May 11/88. Spill of phenolic waste into Bay of Quinte.	Company pleaded guilty and fined $50, 000.00 for Bay of Quinte charge.
2.	BCL/Dlv. of International Paints (Canada) Ltd. (Cornwall)	March 9/87. Discharge of sulphuric acid to the St. Lawrence River.	Trial date Nov. 29/88. Company fined $25,000.00
3.	Courtaulds Canada (Cornwall)	April 17/88. Discharge of oleic acid to St. Lawrence River.	Trial continuing July 26 & 27 1989.
4.	Domtar Inc. (Trenton)	September 3/87. Discharge of a form of creosote into Trent River.	Trial continuing September 18-22, 1989.
5.	Dow Chemical Canada Inc. (Sarnia)	July 30/86. Discharged ethylbenzene into St. Clair River	Trial adjourned to June 20 & 21/89.
6.	Waferboard Corporation Ltd. o/a Malette Kraft Pulp & Paper (Smooth Rock Falls)	March 18/87. Failed to comply with terms of Control Order. Allowed effluent to be discharged into river.	Trial adjourned to Oct. 20/89
7.	Petrosar (Sarnia)	Sept. 23/87. Discharge of brine into a drain creek and the St. Clair River.	Convicted and fined $18,000.00
8.	Polysar Ltd. (Sarnia)	Aug31/88. Impairment of water quality due to acetonitrile spill into the St. Clair River.	Trial adjourned to June 28/89.
		Mar. 27/87. Permitted discharge of a toxic solvent into the Cole Drain which empties into the St. Clair River.	Trial adjourned to June 28/89.
		Sept. 23/87. Permitted discharge of a toxic solvent into the Cole Drain which empties into the St. Clair River.	Trial adjourned to June 28/89.
		Sept. 9/87. Discharge of styrene into the St. Clair River.	Trial adjourned to June 28/89.
9.	Texaco Canada Inc. (Nanticoke/Jarvis)	Dec. 17/87. Oil spill into Hickory Creek	Company pleaded guilty and fined $24,000.00

TABLE 3B
OCTOBER 1988, REPORT
UPDATE OF OUTSTANDING 1987 WATER RELATED OFFENCES FOR WHICH CHARGES WERE LAID

	COMPANY	OFFENCE DATE AND DESCRIPTION	DISPOSITION
1.	Dow Chemical Canada Inc. (Sarnia)	July 30/86. Discharged ethylbenzene into St. Clair River	Trial adjourned to June 20 & 21/89.
2.	James River Marathon Ltd. Marathon Northwest Region	March 1, 2, 1987 Discharge of 5,000 gallons of turpentine into Jellicoe Cove E.P.A. S.13(1)a O.W.R.A. S.16(1)	Decision to be given November 24, 1989

6.0 MISA MONITORING AND REGULATORY PROGRESS

The MISA (Municipal-Industrial Strategy for Abatement) program was officially announced by the Ontario Ministry of the Environment in the White Paper of June 1986. The goal of the program is to reduce all municipal and industrial waste loadings and to virtually eliminate the discharge of persistent toxic contaminants to Ontario's waterways.

To achieve the goal of virtual elimination, the MISA program has introduced new concepts and regulatory powers for pollution control. Legislative authority is provided by Section 136 of the Environmental Protection Act. Under this authority, the Ministry will impose monitoring and effluent limits regulations on all dischargers in Ontario.

The monitoring regulations require dischargers to monitor their point source discharges at regular intervals. This will provide comprehensive data on effluent quality, particularly for toxic contaminants.

Information generated by monitoring is being entered to a data base on contaminants discharged across Ontario. This data is being applied to the development of effluent limits. The limits will be established, based on the best available pollution control technology which is economically achievable (BATEA).

The MISA monitoring and limits regulations will first apply, on a sector-by-sector basis, to nine industrial sectors and the municipal sector. The nine industrial sectors are:

- **PETROLEUM REFINING SECTOR (0100)**
  Seven petroleum refineries that manufacture a variety of refined petroleum products and blend lubricating oils and grease.
- **ORGANIC CHEMICAL MANUFACTURING (0200)**
  Twenty-four companies that manufacture organic chemicals, plastics, and synthetic fibres.
- **PULP AND PAPER (0300)**
  Twenty-seven mills that make pulp, paper, paperboard, corrugated medium and boxboard from logs and used paper (newspaper, ledger paper, containers, etc).
- **METAL MINING AND REFINING (0400)**
  Industrial activities that consist of mining and concentrating ores, 69 major active mines) and smelting and refining non-ferrous metals. The metals are nickel, copper, lead, zinc, gold, silver, salt, uranium.
- **IRON AND STEEL (0500)**
  Seven plants that make iron and steel from ore, scrap and coal. Primary steel is produced at four locations while electric arc furnaces are used at three locations.
- **ELECTRIC POWER GENERATION (0600)**
  Seventy-six establishments that generate electrical power using fuel oil, coal, natural gas and uranium.
- **INORGANIC CHEMICALS (0700)**
  Twenty-two factories that make inorganic chemicals (sulphuric acid, caustic hydrochloric acid, fertilizers, abrasives, carbon black, etc.)
- **METAL CASTING (0800)**
  Thirteen factories that make castings from iron, steel and other metals comprise this sector.
- **INDUSTRIAL MINERALS (0900)**
  125 sites that are primarily engaged in mining and processing non-metallic minerals and structural materials including asbestos, gypsum, graphite, mica, limestone, talc, vermiculite, nepheline syenite, calcite, quartzite, dolomite, sand and gravel. Subsectors are: cement, graphite, gypsum, magnesium, chemical lime, sand and gravel, talc, quarries.

The companies falling within the above-listed industrial sectors account for approximately two-thirds of Ontario's direct industrial dischargers.

Monitoring and limits regulations are under development or planned for each sector listed above. The monitoring regulations will come into force following a public review period. Effluent limits regulations for each sector will be developed taking into account the monitoring data collected during the monitoring regulation.

Both the monitoring and limits regulations are being developed with dischargers and public participation. Consultation with industries and municipalities is maintained through Joint Technical Committees (JTC), made up of representatives from the ministry, Environment Canada, and the affected dischargers. These technical committees, one per sector, oversee studies during the pre-regulation phase and provide an opportunity for the dischargers to have input to the regulation development process.

Public review of the regulation is initially provided by the MISA Advisory Committee (MAC). Independent technical and environmental experts sit on this committee. MAC provides the Minister of the Environment with advice and comments on regulations being developed and other MISA matters.

Within the Ontario government other ministries have cooperated with the Ministry of the Environment to streamline the passage of sector monitoring regulations into law. Thus by year end 1989, nine sectoral Monitoring Regulations will have been promulgated.

Preparations have started for the development of Best Available Technology Economically Achievable (BATEA) limits regulations. Setting limits for persistent toxic compounds at trace levels is a complex task. Analytical protocols, toxicology, risk assessment, probability, human health, protection of aquatic life, and economics are all factors in the limit setting process.

Several other major Ministry projects supporting MISA are also well under way. A list of priority pollutants for Ontario, titled the Ontario Effluent Monitoring Priority Pollutants List (EMPPL), has been developed and includes a listing mechanism which recognizes and assigns significance to the environmental effects of a specific pollutant. A study has also been completed on the availability of private laboratory services in North America. Also , major studies are in progress to assess various socio-economic impacts relating to the implementation of the MISA program for each industrial sector (Economic and Financial Profiles).

Pilot site studies are also in progress at six sites across the province, covering both Great Lakes and inland waterways situations. These will provide data to enable standard procedures and techniques to be developed for assessing the impact of discharges on receiving water quality.

To support the implementation of MISA, work is underway to revise the water management policies of the Ministry of the Environment's Blue Book - the policy manual for water quality management in Ontario.

Funding for MISA fiscal year 89/90 (April 1989 to March 1990) is $22.5 million. An additional 104 staff have been assigned to regional operations for implementation of the MISA program.

Comments on each of the nine industrial direct discharging sectors are presented in the following sections.

6.1 Petroleum Refining Sector

Description

The pertoleum refining sector in Ontario consists of seven plants, six of which are conventional petroleum refineries with total plant sales of 24 billion litres, and one which is a petroleum-based producer of primary petrochemicals with a capacity of 1.3 billion kilograms.

Petroleum refinery effluents consist mainly of process wastewater (process effluent) and non-contact cooling water (once through cooling water) which can be potentially contaminated if leakage occurs.

All the petroleum refineries in Ontario have effluent treatment systems that consist of two primary stages (oil/water separators), some form of intermediate equalization, secondary treatment (biological treatment) and biomass removal. The treatment systems are comparable to those required by U.S. E.P.A.

The Ontario Ministry of the Environment enforces Federal Regulations and applies both Federal and Provincial guidelines for the petroleum industry. According to these guidelines, petroleum refineries report five parameters which are considered to be representative of their effluents: phenolics, ammonia-nitrogen, total suspended solids, oil and grease and acute toxicity to fish - 24 hr static test.

Status

In Ontario, monitoring of the petroleum refineries' effluents under the MISA regulation started on December 1988 when O.Reg . 359/88, as amended to O.Reg. 696/88, came into force. All the refineries are monitoring their effluents according to the requirements of the regulation. Once the monitoring data have been evaluated by the Minstry, an effluent limits regulation will be developed for the petroleum refining sector. The effluent limits regulation is expected to be in place in 1991.

Table 4 presents a comparison of actual and allowable loadings of total suspended solids, phenolics, ammonia-nitrogen, oil and grease and sulphides. Results of the 24 hr static fish test for each Ontario refinery are also shown for the year 1988.

In reviewing the data and status of petroleum refineries readers may wish to refer to the subsequent section, Pollutants and their Significance (Appendix E).

6.1.1 Loading Trends

Table 5 presents annual average daily loadings of ammonia-nitrogen, phenolics, total suspended solids, and oil and grease discharged from each petroleum refinery in Ontario for 1985 through to 1988. Figure 1 presents the data graphically and includes data for 1983 and 1984.

TABLE 4
Petroleum Refining Sector Comparison of Actual Loadings and Allowables; Ontario, Environment Canada, (unless indicated otherwise, units are kg/day)

July 1988

REFINERY/ POLLUTANT	PETRO-CANADA (Clarkson)	ESSO	PETROSAR	PETRO-CANADA (Trafalgar)	SHELL	SUNCOR	TEXACO (Nanticoke)
TOTAL SUSPENDEND SOLIDS (biological solids, insoluble oil, clay)							
Actual	84.91	0*	6	124.3	0*	388	N/A
Ontario	153	3287	82.5	86.9	4252	1561	N/A
Env. Canada	291.9	783.8	137.2	350.1	467.9	326.3	326.6
PHENOLICS							
Actual	0.09	0.09	0.02	0.17	0*	0.14	0.018
Ontario	0.204	4.38	0.11	0.12	5.7	2.18	0.156
Env. Canada	12.2	32.7	5.7	14.6	19.5	13.6	13.6
AMMONIA-NITROGEN							
Actual	26.2	5	4	20.1	0*	18	0.2
Ontario	102	2191	55	58	2835	1040	78
Env. Canada	101.3	272.0	68.6	132.9	162.4	119.6	13.3
OIL AND GREASE							
Actual	28.5	0*	0	9	0*	89	N/A
Ontario	102	3287	82.5	86.9	4252	1561	N/A
Env. Canada	121.6	326.6	57.2	145.9	195.0	135.9	136.1

TABLE 4 ... continued

REFINERY/POLLUTANT	PETRO-CANADA (Clarkson)	ESSO	PETROSAR	PETRO-CANADA (Oakville)	SHELL	SUNCOR	TEXACO
SULPHIDES							
Actual	N/A	0	N/A	N/A	0	0	0.012
Ontario (none)	-	-	-	-	-	-	-
Env. Canada	4.1	10.9	1.9	4.9	6.5	4.5	4.5
Monthly Federal/Ontario Fish Test for 1987 (passes)	12	11	12	9	12	12	12
Reference Crude Rate (m^3/day)	7106	19080	6680	10330	11390	89510	15900

Note:

- Environment Canada has 3 different allowable limits for each pollutant: the most stringent, the monthly average limit, has been calculated by each refinery.

- Ontario's concentration limits for TSS (15 ppm), phenolics (.02 ppm), ammonia-nitrogen (10 ppm), oil and grease (10 ppm) and sulphides (none) have been converted to loadings.

* Intake exceeded discharge.
N/A - not available

TABLE 5
AVERAGE ANNUAL LOADINGS - PETROLEUM REFINERIES
(all loadings in kilograms per day)

	AMMONIA-NITROGEN				PHENOLICS			
	1985	1986	1987	1988	1985	1986	1987	1988
ESSO CANADA @ SARNIA	24.7	14.1	15.41	7.02	.7	.21	0.48	0.125
PETRO-CANADA @ CLARKSON	21.5	41.2	19.84	8.9	1.072	.34	0.28	0.09
PETRO-CANADA @ OAKVILLE	50.1	49.8	24.43	25.7	.18	.298	0.13	0.13
PETROSAR @ CORUNNA	14.5	15.26	13.92	5.27	.1	.03	0.03	0.02
SHELL @ CORUNNA	6.45	2.73	7.56	16.6	.35	.18	0.11	0.099
SUNCOR @ SARNIA	23.3	33.25	42.6	17.5	.67	.35	0.24	0.19
TEXACO @ NANTICOKE	1.28	1.51	0.53	0.27	.02	.008	0.01	0.007
TOTALS	141.8	157.85	124.29	81.3	3.1	1.416	1.28	0.659

	TOTAL SUSPENDED SOLIDS				OIL AND GREASE			
	1985	1986	1987	1988	1985	1986	1987	1988
ESSO CANADA @ SARNIA	418	395.1	32.7	0*	113	80.15	7.9	30.6
PETRO-CANADA @ CLARKSON	158	148.8	135.5	93.7	91.1	89.5	71.5	25.3
PETRO-CANADA @ OAKVILLE	71.8	93.5	119	122	5.7	9.13	11.3	8.65
PETROSAR @ CORUNNA	43.7	29.9	21.4	21.7	11.1	4.17	2.6	1.25
SHELL @ CORUNNA	767	371.1	562.7	210	117.0	118.7	137	8.15
SUNCOR @ SARNIA	416	362.8	205.6	219	44.1	72.83	69.2	45.6
TEXACO @ NANTICOKE	4.5	1.59	2.4	0.67	32.1	2.68	6	5.9
TOTALS	1879	1402.8	1079.3	667	384.1	377.2	305.5	125.5

* Intake exceeded discharge

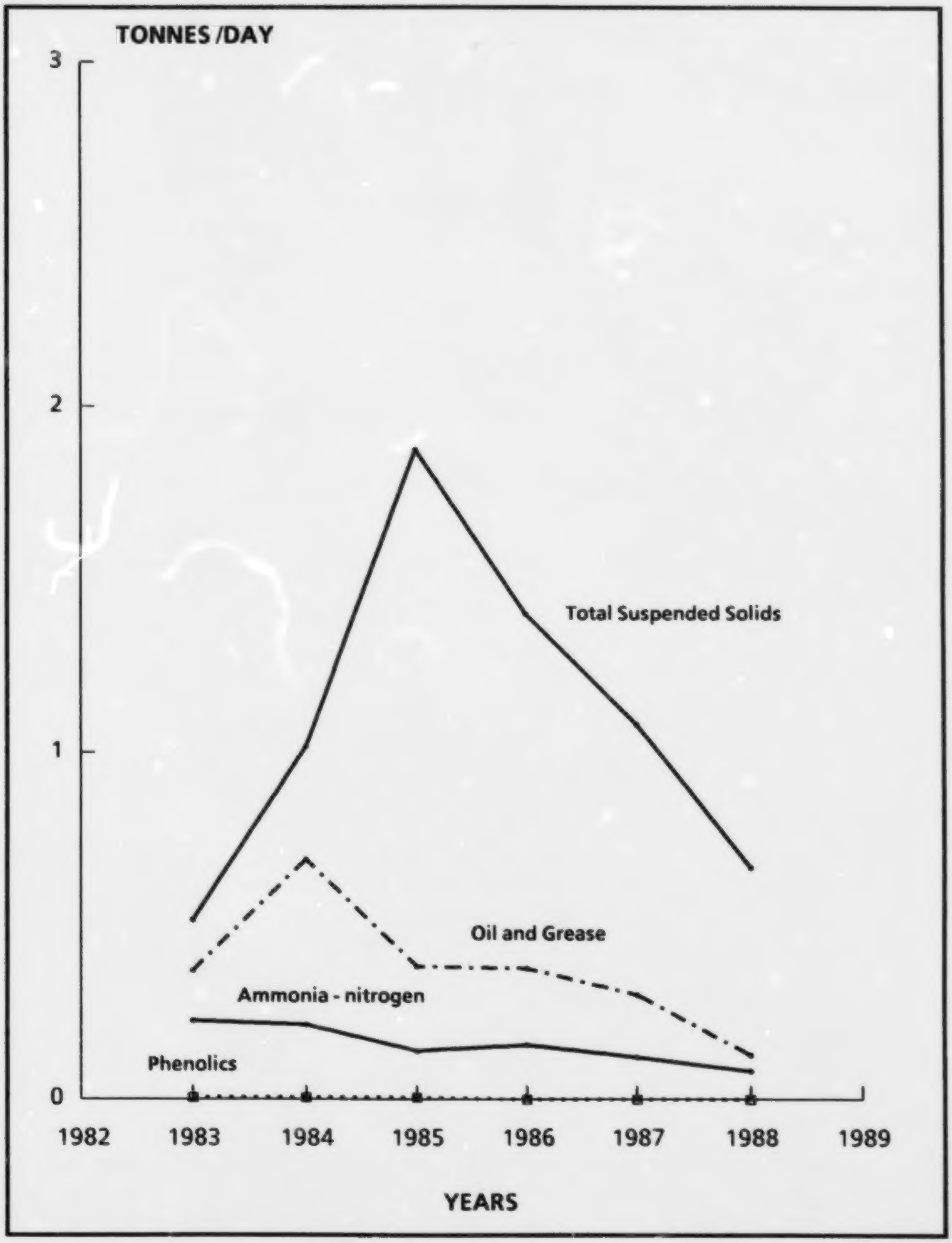

Figure 1. Average annual loadings of ammonia-nitrogen, oil and grease, phenolics and total suspended solids discharged by Petroleum Refineries from 1983 - 1988.

Ammonia-nitrogen total discharges in 1988 (81.3 kg/day) showed a large decrease of 42.99 kg/day over the total for 1987 (124.29 kilograms). Total discharges of phenolics decreased from 1.28 kg/day in 1987 to 0.659 kg/day in 1988 (a decrease of 0.621 kg/day). Total suspended solids discharges decreased by 412.3 kilograms per day (kg/day), from 1079.3 kg/day in 1987 to 667 kg/day in 1988.

Oil and grease (solvent extractables) showed a large decrease from 1987 to 1988. Total discharges of oil & grease from all sources decreased by 180 kg/day (125.5 kg/day in 1988 compared to 305.5 kg/day in 1987).

6.2 Organic Chemical Manufacturing (OCM) Sector

Description

The OCM Sector includes twenty-four plants. Nine of the plants are located along the St. Clair River with the others located along Lake Ontario between Cobourg and Kingston; along the St. Lawrence River between Brockville and Cornwall; in the Niagara area; north of Orillia and at Elmira.

The plants manufacture a wide range of products including fibres (nylon, rayon, polyster, spandex), plastics (PVC, ABS, polyethylene, polystyrene), synthetic rubbers, phenolformaldehyde resins, cellulosic film, chlorinated hydrocarbons, and synthetic detergent bases.

Status

The MISA effluent monitoring regulation for the OCM Sector was promulgated on April 25, 1989 as Ontario Regulation 209/89.

Monitoring under the regulation is to begin on October 1, 1989 and continue for a twelve-month period. Each plant site in the sector has its own site-specific monitoring schedule reflecting its unique raw materials and products. Monitoring at five frequency levels is specified:

- daily monitoring for two to four conventional contaminants.
- thrice weekly monitoring for toxic and conventional contaminants found at significant concentrations during pre-regulation monitoring
- weekly monitoring for toxic and conventional contaminants found in low concentrations
- monthly monitoring for all contaminants chemically similar to those monitored weekly or thrice weekly
- quarterly or semi-annually monitoring for 152 contaminants including 137 toxic contaminants from the Effluent Monitoring Priority Pollutants List and 15 coventional parameters
- Open characterization of effluent streams to identify additional contaminants not specifically monitored under the regulation is required quarterly or semi-anuually.

The regulation also requires monthly biological monitoring. Toxicity tests will be run on final plant effluents using Rainbow trout and *Daphnia magna* (water fleas).

The information obtained under the monitoring regulation will be used to set discharge limits under the limits regulation for the plants in the sector.

6.3 Pulp and Paper Industry Sector

Description

There are twenty-seven (27) pulp and paper mills located throughout the Province of Ontario which discharge waste effluent into surface watercourses. Of these twenty-seven, 9 are kraft mills and the remainder are various types of pulping and paper making mills. In general, the industry consists of chemical pulping mills (e.g. kraft, sulphite, etc.), mechanical pulping mills (e.g. stone groundwood, thermo-mechanical (TMP), etc.), papermaking mills, recycling mills, de-inking mills and tissue mills. Seven of the twenty-seven mills discharge into drainage basins other than the Great Lakes.

All mills have some form of primary treatment to control total suspended solids. Three kraft mills have installed biological treatment systems, and a fourth kraft mill is currently installing a biological treatment system.

In addition, one paperboard mill which discharges to a small river, operates an aerated lagoon system and two mills which de-ink wastepaper, operate high rate biological oxidation systems.

The quality of mill effluents is currently measured by three parameters, total suspended solids (TSS), 5 day biochemical oxygen demand (BOD5), and acute toxicity. In this report, comparison of effluents with Ontario's limits (Table 4) and discharge trends (Table 5 and Figure 2) of these parameters over the last 4 years has been included.

Status

Mill effluents
A draft monitoring regulation was released for public review in March, 1989. Subsequently, the Draft Regulation was submitted to the Registrar of Regulations to be finalized before submission to Cabinet. The monitoring regulation will be available to the public shortly after it has been promulgated.

The effluent monitoring regulation for this sector was promulgated on July 21, 1989 and the mills will commence monitoring in January 1990. The data generated from this monitoring regulation will be used to formulate limits under the MISA limits regulation.

Kraft Mill Effluents in Ontario
Ontario's nine draft mills must reduce the flow of toxic chemicals currently being discharged into the province's rivers and lakes by the end of 1990, as a result of a strategy released in April, 1989, by the Ministry of the Environment. Further reductions will be required under a MISA limits regulation to be released in 1991.

The ministry's strategy is explained in a report titled "Interim Pollution Reduction Strategy for Ontario Kraft Mills (April 1989)". The strategy was developed by the ministry after carefully considering a study on kraft mill effluents conducted by an independent body of experts.

The interim strategy will be applied while the MISA limits regulation is being developed and implemented. Using control orders, the ministry will seek the maximum pollution reduction that can be gained from each mill over the next two years . The control orders, to be issued in 1989, will require kraft mills to reduce levels of chlorinated organic compounds, measured as absorbable organic halides (AOX), to 2.5 kilograms per air dried tonne (ADT) of bleached pulp a day.

The ministry may also impose more stringent reductions than the levels recommended in the experts' report for BOD5, TSS, and dissolved oxygen.
Kraft mills will be required to monitor (ie. BOD5) their effluents for compliance with the interim limits. Additional monitoring will also be required under the MISA monitoring regulation.

Table 6 shows a comparison of actual annual average loadings versus existing allowables of total suspended solids and BOD5 discharged from pulp and paper mills in Ontario. These allowables may be set by Control Orders, Certificates of Approvals, Federal regulations or Provincial guidelines. Refer to the companies' individual Wastewater Discharge Summary sheet to determine which of the above applies.

6.3.1 Loading Trends

The quality of mill effluents is currently measured by three parameters, total suspended solids (TSS), 5 day biochemical oxygen demand (BOD5), and acute toxicity. Table 7 presents average annual daily loadings for BOD5 and total suspended solids from all Ontario Pulp and Paper mills from 1985 to 1988. Mills discharging into the Great Lakes Basin are shown separately. Figure 2 depicts these data graphicallly and includes additional data from 1983 and 1984.

The total discharge of total suspended solids (TSS) for all Ontario mills decreased by 5,915 kg/day (to 80,130) for 1988 compared to 1987 (86,045 kg/day). Total suspended solids discharges to the Great Lakes Basin decreased by 3,640 kg/day between 1987 (55,893)and 1988 (52,250)

The total discharge of BOD for all Ontario mills for 1988 (359,300 kg/day) increased by 39,400 kg/day compared to 1987 (319,900 kg/day). The 1988 BOD levels decreased by 2,380 kg/day (207,500 kilograms in 1988 compared to 209,880 kilograms in 1987) for the sources discharging to the Great Lakes Basin.

TABLE 6

Comparison of Actual Annual Average Loadings vs Allowable Loadings of TSS and BOD5 discharged from Pulp and Paper Mills in Ontario

(in tonnes per day)

Company	Biochemical Oxygen Demand		Total Suspended Solids	
	Actual.	Allowable	Actual	Allowable
ABITIBI-PRICE INC. @ IROQUOIS FALLS	43.5	69.0	7.8	9.0
ABITIBI-PRICE INC. PROVINCIAL PAPERS @ THUNDER BAY	3.8	S/C	1.0	S/C
ABITIBI-PRICE INC. FORT WILLIAM @ THUNDER BAY	11.8	S/C	1.88	S/C
ABITIBI-PRICE INC. THUNDER BAY @ THUNDER BAY	24.0	S/C	1.57	S/C
BEAVER WOOD @ THOROLD	1.41	2.5	.592	0.9
BOISE CASCADE CANADA LTD. @ FORT FRANCES	9.66	S/C	4.21	S/C
BOISE CASCADE CANADA LTD. @ KENORA	25.2	S/C	3.5	S/C
CANADIAN PACIFIC FOREST PRODUCTS @ DRYDEN	1.8	-	3.5	5.6
CANADIAN PACIFIC FOREST PRODUCTS @ THUNDER BAY	40.7	77.7	10.75	14.0
DOMTAR FINE PAPERS @ CORNWALL	15.74	S/C	7.16	S/C
DOMTAR PACKAGING @ RED ROCK	16.56	S/C	4.83	S/C
DOMTAR FINE PAPERS @ ST. CATHARINES	.773	.193	.173	0.193
DOMTAR PACKAGING @ TRENTON	6.43	6.797	1.71	1.879
E. B. EDDY FOREST @ ESPANOLA	1.88	3.6	5.2	10.6
E.B. EDDY FOREST PRODUCTS @ OTTAWA	1.67	1.2	.47	1.2
FRASER @ THOROLD	2.6	3.5	.82	1.1
JAMES RIVER @ MARATHON	13.7	S/C	1.96	4.8
KIMBERLY CLARK @ HUNTSVILLE	-	-	-	-
KIMBERLY CLARK @ ST. CATHARINES	.415	.44	.018	0.44
KIMBERLY CLARK @ TERRACE BAY	26.22	S/C	4.86	7.5

Allowables = Ontario or Federal Discharge Criteria
Actual = Actual Average Annual Discharge
Total suspended solids in Ontario consist of bark, wood, fibre, clay, etc;
S/C - See company Wastewater Discharge Summary sheet.

TABLE 6 cont'd
Comparison of Actual Annual Average Loadings vs Allowable Loadings of TSS and BOD5 discharged from Pulp and Paper Mills in Ontario
(in tonnes per day)

Company	Biochemical Oxygen Demand		Total Suspended Solids	
	Actual.	Allowable	Actual	Allowable
MacMILLAN BLOEDEL @ STURGEON FALLS	36.0	S/C	2.2	3.3
MALETTE PULP & PAPER @ SMOOTH ROCK FALLS	7.5	S/C	2.22	S/C
QUEBEC AND ONTARIO PAPER CO. @ THOROLD	.7	18.1	2.28	6.8
SPRUCE FALLS POWER AND PAPER COMPANY @ KAPUSKASING	23.6	S/C	6.19	S/C
ST. MARYS PAPER @ SAULT STE. MARIE	2.01	-	5.03	6.22
STRATHCONA PAPER @ STRATHCONA	.18	S/C	.12	1.27
TRENT VALLEY PAPER-BOARD @ TRENTON	2.9	-	.6	0.14

Allowables = Ontario or Federal Discharge Criteria
Actual = Actual Average Annual Discharge
Total suspended solids in Ontario consist of bark, wood, fibre, clay, etc;
S/C - See company Wastewater Discharge Summary sheet.

TABLE 7
AVERAGE ANNUAL LOADINGS - PULP AND PAPER MILLS
(all data in tonnes per day)

Great Lakes Basin	TOTAL SUSPENDED SOLIDS				BIOCHEMICAL OXYGEN DEMAND			
	1985	1986	1987	1988	1985	1986	1987	1988
ABITIBI-PRICE INC. PROVINCIAL PAPERS	1.82	1.08	0.9	1.0	3.95	3.14	3.4	3.8
ABITIBI-PRICE INC. FORT WILLIAM	1.2	1.21	1.83	1.88	8.6	10.81	12.43	11.8
ABITIBI-PRICE INC. THUNDER BAY	1.26	1.4	1.43	1.57	19	20.93	19.5	24.0
BEAVER WOOD @ THOROLD	1.6	1.41	1.09	.904	3	2.56	1.98	1.41
CANADIAN PACIFIC FOREST PRODUCTS @ THUNDER BAY	13.3	13.7	11.33	10.7	46.3	43.08	44.9	40.7
DOMTAR FINE PAPERS @ ST. CATHARINES	.24	.07	0.13	.173	.49	.74	0.68	.773
DOMTAR FINE PAPERS @ CORNWALL	9.4	7.91	7.07	7.16	17.1	15.14	13.87	15.74
DOMTAR PACKAGING @ RED ROCK	4.4	4.04	4.8	4.83	17.8	17.2	15.88	16.56
DOMTAR PACKAGING @ TRENTON	.59	1.93	2.42	1.71	5.34	5.86	7.23	6.43
E. B. EDDY FOREST @ ESPANOLA	5.3	5.14	4.5	5.2	2.7	2.19	1.82	1.88
FRASER @ THOROLD	1.01	.97	.92	.82	2.09	1.87	2.24	2.6
JAMES RIVER @ MARATHON	4.5	2.92	2.47	1.96	13.2	14.3	13.5	13.7
KIMBERLY CLARK @ TERRACE BAY	25.8	5.35	5.57	4.86	34.9	29.55	24.83	26.22
KIMBERLY CLARK @ ST. CATHARINES	.05	0 *	0.028	.018	.52	.46	0.408	.41
MacMILLAN BLOEDEL @ STURGEON FALLS	2.40	2.51	2.37	2.2	41.70	38.48	37.02	36.0

* Intake exceeded discharge

TABLE 7 ...continued

Great Lakes Basin	TOTAL SUSPENDED SOLIDS				BIOCHEMICAL OXYGEN DEMAND			
	1985	1986	1987	1988	1985	1986	1987	1988
THE ONTARIO PAPER CO. @ THOROLD	5.20	3.60	4.75	2.28	12.80	7.89	4.24	.8
ST. MARYS PAPER @ SAULT STE. MARIE	3.20	3.55	3.45	5.03	3.60	2.85	2.96	2.01
STRATHCONA PAPER @ STRATHCONA	0.13	0.19	0.13	.12	0.31	0.30	0.13	.18
TRENT VALLEY PAPER-BOARD @ TRENTON	0.14	.53	0.5	.6	1.83	2.13	1.77	2.9
SUB-TOTAL	61.91	58.6	55.893	52.25	235.99	221.25	209.88	207.5

Non - Great Lakes Basin	TOTAL SUSPENDED SOLIDS				BIOCHEMICAL OXYGEN DEMAND			
	1985	1986	1987	1988	1985	1986	1987	1988
ABITIBI-PRICE INC. @ IROQUOIS FALLS	5.6	5.41	5.5	7.79	47.60	47.74	42.2	43.5
BOISE CASCADE CANADA LTD. @ FORT FRANCES	6.1	4.52	4.53	4.21	12.1	10.49	9.6	9.66
BOISE CASCADE CANADA LTD. @ KENORA	8.7	5.01	3.39	3.5	25	21.01	23	25.2
CANADIAN PACIFIC FOREST PRODUCTS @ DRYDEN	5	3.33	4.0	3.5	2.80	2.64	2.2	1.8
E.B. EDDY FOREST PRODUCTS @ OTTAWA	.59	6.19	0.456	.47	1.02	1.00	1.29	1.67
KIMBERLY CLARK @ HUNTSVILLE	.001	-	-	-	.008	-	-	-
MALETTE PULP & PAPER @ SMOOTH ROCK FALLS	2.4	2.92	4.8	2.22	7.80	7.05	7.9	7.5
SPRUCE FALLS POWER AND PAPER COMPANY @ KAPUSKASING	7.4	6.73	7.0	6.19	25.2	24.97	23.3	23.6
TOTALS	97.40	92.71	86.045	80.13	386.03	336.15	319.9	320.4

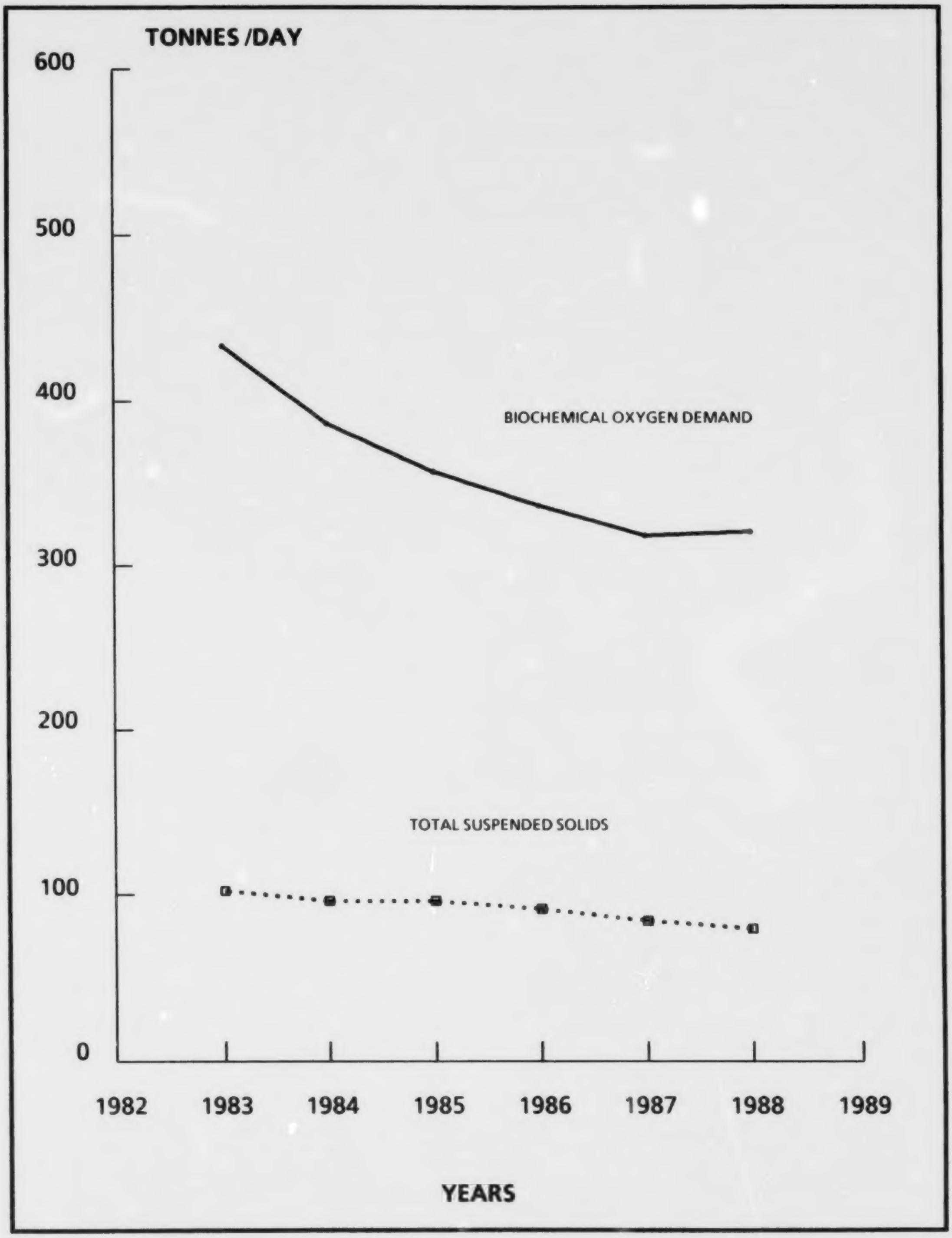

Figure 2. Average annual loadings of biochemical oxygen demand and total suspended solids discharged by Pulp and Paper mills from 1983 to 1988.

6.4 Metal Mining and Refining Sector

Description

This sector consists of metal mines, salt mines and associated processing operations such as smelting and refining. Substances mined include gold, silver, iron, copper, nickel, lead, zinc, uranium and salt (sodium chloride). Processing of iron into steel is a separate MISA sector.

Individual plants in this sector may be based on open pit or underground mining techniques; may or may not be associated with concentrators, smelters and refineries; may be in an urban or remote setting; may employ less than 10 or more than 1,000 people; may or may not use organic reagents; and may employ technologies that are simple or extremely complex in nature.

All ore bodies are finite. That is, once ore reserves at a site are exhausted, operations terminate. Since some ore bodies are small, some mining operations have short lives. In addition, most mines sell products on international markets. Market demand can quickly turn an inactive mine into an active one while lack of international demand can force the closure of a property. As a result some mines can go from an active status to an inactive status and vice versa within a space of weeks or months.

Most mining operations produce large quantities of waste material that has the consistency of beach sand. This material is called tailings and is directed to and stored in large engineered basins called 'tailings areas'. The residence time in these areas can be significant and in most cases is in excess of 30 days. In many cases, the retention time results in good settling of solids. The frequency of discharge from these areas varies greatly and depends on factors such as the amount of wastewater being recycled back to the process and the ambient temperature. Because of extreme winter conditions, some areas have no effluent during the coldest months.

A large number of waste treatment strategies are required to control wastewater flows from mining operations when problems exist because ore types and associated processing varies greatly within the sector. While the control of suspended solids and pH are the most commonly encountered treatment requirements in the sector, effluents may contain metals, arsenic, and radio-active substances.

Status

The effluent monitoring regulation for the Ontario Minerals Industry: Group "A", was promulgated on August 25, 1989 and sampling under the Regulation will commence February 1, 1990.

6.5 Iron and Steel Sector

Description

Ontario's seven iron and steel producers must monitor the wastewaters they discharge to rivers and lakes for up to 152 contaminants.

These seven plants are located along Lake Ontario between Hamilton Harbour and Whitby, along the St. Marys River, along the Ottawa River, in the Niagara area and along Lake Erie near Nanticoke.

Status

The effluent monitoring regulation for the iron and steel sector was promulgated on the 29th of May, 1989.

With the promulgation of the regulation, iron and steel plants are preparing their plants for monitoring which is to begin on November 1, 1989.

Companies in this sector have five months to comply with the regulation. This lead-in time will allow the companies to purchase and install required equipment, to arrange for laboratory services, and to train personnel. Costs of monitoring will be borne by the industry.

The Iron and Steel Industry has been divided into integrated iron and steel mills (four plants), and specialty steel producers and mini mills (three plants). Integrated mills include coke-making and iron-making processes which generate most of the industry's priority pollutants. Specialty steel producers and mini mills generally melt scrap metal to produce low carbon steel and specialty steel products.

Final discharges to waterways will be monitored daily for four substances, three times a week for 12 contaminants, weekly for eight to 12 substances, monthly for 86 (three smaller operations) or 117 (four large mills), and quarterly for 140 (small mills) or 152 (large mills) pollutants. Other waste streams such as cooling water, waste disposal site and storage site have different monitoring schedules. As well, provision has been made for additional sampling to be carried out for a period of up to six months following the completion of the initial one year regulatory monitoring period. Biological monitoring will provide an additional screening mechanism that will complement chemical analysis of toxic substances. Monthly toxicity tests using rainbow trout and *D. magna* will be conducted.

Each plant must sample its own discharges and have them tested to standards specified in the regulation, with random ministry audits to verify that the results are accurate and representative.

Enforcement of the regulation is provided under the Ontario Environmental Protection Act. Violators face fines of up to $50,000 a day.

Incremental capital and monitoring costs for the Iron and Steel Sector will be about $7.8 million ($2.9 million for operating cost and $4.9 million for capital costs). There are about 34,000 people employed by the Iron and Steel Sector companies. The monitoring requirements will not have an adverse effect on employment levels. The sector plants will not suffer undue financial burden from the monitoring costs.

6.5.1 Loading Trends

Table 8 presents daily loadings for ammonia, phenolics, total suspended solids and oil and grease discharged from four Ontario steel mills for the years 1985 to 1988. Figure 3 depicts these data graphically and includes additional data for 1983 and 1984. Loadings for Algoma Steel are 'total loadings'. For the other sites 'net loadings' (the total loading minus the intake water loading) are presented.

Total ammonia discharges in 1988 were higher than 198 discharges by 643 kg/day (4,077 kilograms in 1987 compared to 4,720 kilograms in 1988). Total discharges of phenolics for 1988 were 12.74 kilograms per day higher than they were in 1987, 167.9 kilograms compared to 137.8 kilograms respectively. For suspended solids, the 1988 total was 7,195 kg/day lower than the 1987 total (15,397 kilograms compared to 22,592 kilograms).

Cyanide loadings declined to 124.34 kg/day in 1988, down from the 1987 level of 264.45 kg/day. All four sources showed a decrease in cyanide levels. The total discharges of oil & grease (solvent extractables) decreased marginally for 1988 (by 93.5 kilograms per day). The comparable results are 2668 kilograms for 1987 and 2574.7 kilograms for 1988.

TABLE 8
AVERAGE ANNUAL LOADINGS - IRON AND STEEL MILLS
(all data in kilograms per day)

	AMMONIA				PHENOLICS			
	1985	1986	1987	1988	1985	1986	1987	1988
ALGOMA STEEL CORP @ SAULT STE. MARIE	4002	3993	3195	3806	102	96.45	102.8	160
DOFASCO @ HAMILTON	592	477	234.6	418	8.04	11.11	3.91	5.13
STELCO @ HAMILTON	156	134	640.5	490.8	31.4	42.9	31	2.75
STELCO @ NANTICOKE	4.83	8.66	7.33	5.6	.04	.08	0.09	.041
TOTALS	4755	4613	4077	4720	141	150.54	137.8	167.9

	SUSPENDED SOLIDS				OIL & GREASE			
	1985	1986	1987	1988	1985	1986	1987	1988
ALGOMA STEEL CORP @ SAULT STE. MARIE	8580	9265	9701	8591	1880	1954	1544	2475
DOFASCO @ HAMILTON	11800	10515	4180	3636	837	55	0	0*
STELCO @ HAMILTON	15500	19129	8356	2873	2170	4579	1010	19.8
STELCO @ NANTICOKE	455	405	355	297	69	98.67	114.1	79.9
TOTALS	36335	39314	22592	15397	4939	6687	2668.2	2574.7

* Intake exceeded discharge.

TABLE 8 cont'd
(all data in kilograms per day)

	CYANIDE				IRON			
	1985	1986	1987	1988	1985	1986	1987	1988
ALGOMA STEEL CORP. @SAULT STE. MARIE	70.6	62.6	77.83	64.5	4104	4685	2725	2321
DOFASCO @HAMILTON	21.1	53.0	65.02	58.3	3800	4698	1548	1131
STELCO @HAMILTON	46.5	70.9	119	0*	2750	2521	1769	839
STELCO @NANTICOKE	0.19	2.73	2.6	1.54	22.9	22.04	17.14	20.6
TOTALS	138.39	189.23	264.45	124.34	10677	11916	6059	4311.6

* Intake exceeded discharge.

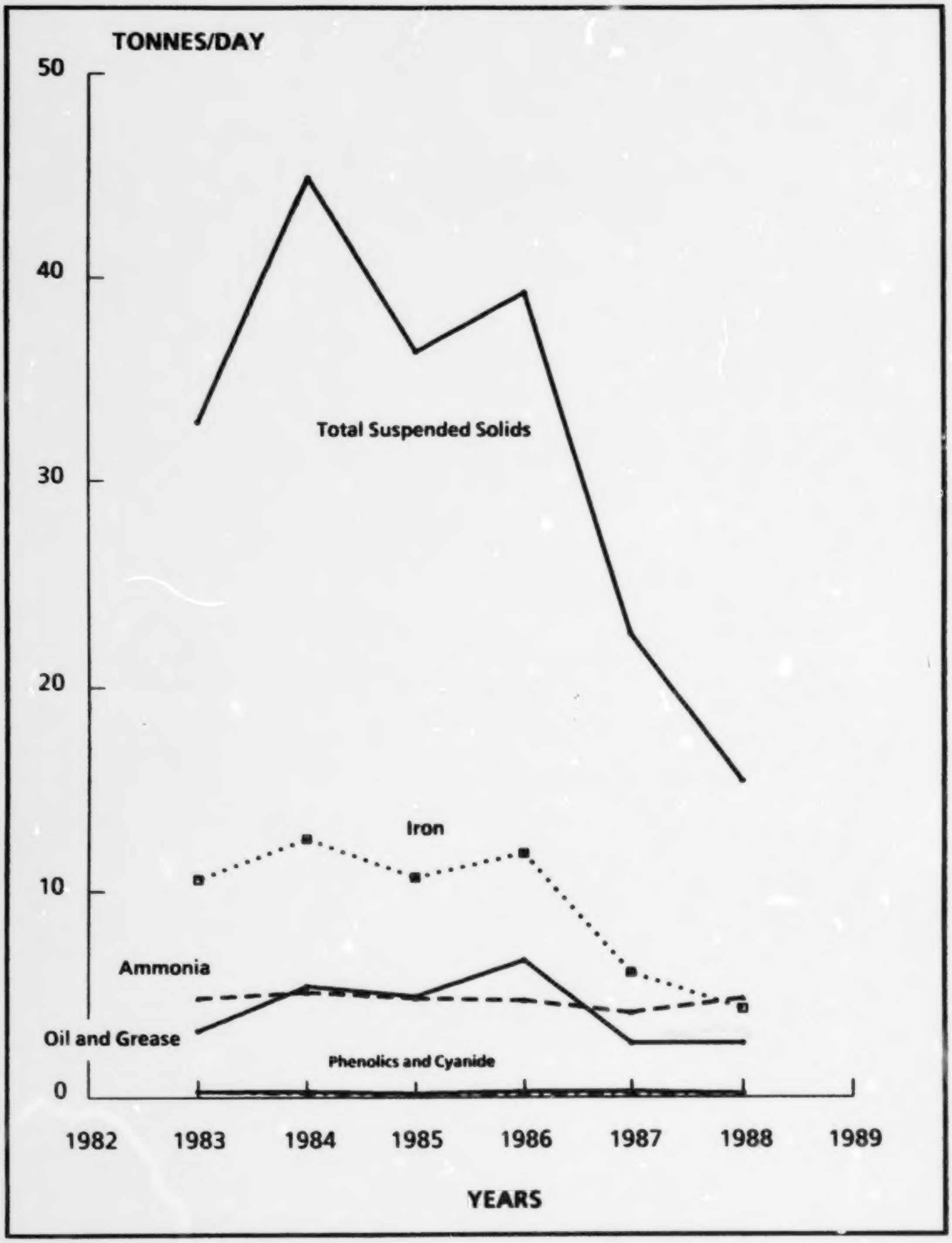

Figure 3. Average annual loadings of total suspended solids, phenolics, cyanide, oil and grease, Iron and ammonia discharged by Iron and Steel mills from 1983 - 1988

6.6 Electric Power Generation Sector

Description

Ontario Hydro (as defined in the electric power generation sector) produces electricity at seventy-six sites in the province. At six of these sites electric power is produced by burning fossil fuels (oil, coal). At two nuclear complexes power is produced by fission of uranium. Lastly, electric power is generated at sixty-eight hydraulic stations of which six have been selected as typical representatives for this group. Two fossil fuel plants are mothballed and one nuclear complex at Darlington near Bowmanville is under construction.

Atomic Energy of Canada Ltd. (AECL) owns the Douglas Point Waste Management Facility (WMF) at Tiverton, and the Nuclear Power Demonstration WMF at Folphton that are both shutdown, and the Chalk River Nuclear Laboratories, at Chalk River.

The Heavy Water Plant , Tiverton and Sewage Treatment (Processing) Plants at Darlington and Bruce are included in this sector.

The parallel generating stations which sell electricity to Ontario Hydro have been excluded from this sector at this time. They are primarily hydraulic stations and a few energy from waste projects which will be addressed within their respective sectors or later.

Status

The MISA Advisory Committee (MAC) of independent environmental experts, has reviewed the draft effluent monitoring regulation for the Electric Power Generation Sector and recommended its release for public review. The MAC supported the inclusion of AECL facilities under this regulation.

The draft development document for the Effluent Monitoring Regulation for the Electric Power Generation Sector was released for public review and comment on August 11, 1989 for a thirty-day period. Promulgation of the regulation is scheduled for November 1989 and, if this timetable is maintained, then monitoring should commence on May 1, 1990. Ontario Hydro has selected a contractor to assist in gearing up for the monitoring regulations.

Under the effluent monitoring regulation, 27 facilities within Ontario's Electric Power generation sector (EPGS) will be required to monitor the waste water they discharge to lakes and rivers for up to 155 contaminants.

The draft effluent monitoring regulation (or regulation) prescribes different monitoring schedules for 12 types of effluent streams. The twelve types of effluent streams are composed of effluents from processes, coal piles, boiler blowdowns, event discharges, once-through cooling water, storm water waste disposal sites, emergency overflows and potentially contaminated building effluent and equipment cleaning effluent.

The regulation requires the stations and associated facilities to monitor process type waste water effluents daily for two to four conventional pollutants; three times a week for those toxic and conventional pollutants found at significant concentrations during pre-regulation monitorng; weekly for other pollutants known to be present; monthly for pollutants chemically similar to any pollutants included in weekly or thrice weekly monitoring; and four times a year for up to 155 pollutants. Open scans using gas chromatography/mass spectroscopy will also be utilized to check for chemicals not specifically tested under the regulation.

Biological monitoring will be required on process type effluents (monthly) and once-through cooling water (quarterly) using rainbow trout and Daphnia magna.

Accurate flow monitoring of process type streams and flow estimation of other streams will also be required to establish total loadings.

This sector will incur incremental capital and operating costs estimated at about $15 million. The estimates range from a low of $57,000 at Douglas Point WMF, Tiverton to a high of $1.57 million at the Bruce Nuclear Power Development Services, Tiverton.

A consultant retained to investigate and recommend on flow measurement and sampling requirements has completed a draft report.

6.7 Inorganic Chemical Sector

Description

The Inorganic Chemical Sector is comprised of 22 companies whose products include nitrogen fertilizers, aluminum oxide (abrasives), chlorine gas and explosives, fibreglass and carbon black. The Inorganic Chemical Sector has been defined to encompass all point source dischargers which process, manufacture, package, or blend inorganic chemicals.

The significant parameters for pollution control in this sector have traditionally been pH and TSS (total suspended solids). Primary treatment is employed at 50% of the plants presently in the sector.

Status

The Inorganic Chemical Sector Monitoring Regulation was promulgated on June 30, 1989. The 22 sites which fall under this regulation are required to commence monitoring on December 1, 1989.

A pipe-specific approach has been taken due to the diversity of processes that exist in the sector. The regulation specifies monitoring requirements for 82 streams and lists the companies to be monitored and the frequency of monitoring required.

Seven classifications of streams are specified for monitoring: process, combined, batch, once-through cooling water, storm, waste disposal site effluent and emergency overflow streams. Frequency of monitoring varies from daily to monthly.

Each facility is required to conduct quarterly or semi-annually characterization of process, combined and batch discharge effluent streams to provide information on the presence or absence of an extensive number of contaminants in these streams. Open characterizations will also be conducted at the same frequency to identify additional contaminants which are not being specifically monitored under the regulation.

Flow monitoring is required to establish pollutant loadings.

Toxicity testing is specified for all final effluent streams to complement chemical analysis of toxic substances.

6.8 Metal Casting Industries Sector

Description

Metal casting plants or foundries melt the metal produced by primary producers from ore and cast the metal into specific products - engine blocks, etc. The Metal Casting Sector is comprised of twenty-three plants, produces ferrous, magnesium, aluminum, brass and copper products. The sector includes large companies such as Ford and Chrysler and also includes a number of smaller companies. Additional plants may be added to this sector.

The foundries may discharge any one of or all of process wastewaters, cooling waters and/or stormwater. Typically the process effluent contains metals, particulates, organics (mainly from resin binders used to make sand molds) and oil and grease.

Status

The draft Effluent Monitoring Regulation for the Metal Casting Sector was issued for a 30-day public review period on April 21, 1989, which concluded on May 22, 1989. Public comments are currently being incorporated into the Effluent Monitoring Regulation, as appropriate. Thirteen Metal Casting companies will be regulated as direct dischargers including: Acustar Canada Inc., The Bowmanville Foundry Co. Ltd., Canron Inc. - Pipe Division, Fahramet Steel Castings, Ford Motor Company of Canada Ltd., Franklin Electric of Canada Ltd., General Motors of Canada Ltd., Haley Industrial Ltd., Richmond Die Casting Ltd., Western Foundry Company Ltd. and Crowe Foundry Ltd. Each plant must sample its own discharges and have them tested as per ministry requirements with random ministry audits to verify that results are accurate and representative. The regulation stipulates quality control and quality assurance procedures for collecting, storing, analyzing and checking samples.

Process effluent streams will be monitored daily for four pollutants, three times per week for up to 19 pollutants, weekly for up to five pollutants and monthly for 108 pollutants and every three months for 150 parameters. Dioxin analysis will be conducted every six months.

Cooling water effluent streams will be monitored monthly for as many as six pollutants and quarterly for PCBs if stored or used on site. In addition cooling water effluent streams that contain small quantities of process effluent will be monitored monthly for as many as six pollutants and quarterly for 138 compounds.

Monthly biological monitoring is required for all process effluent streams. Toxicity tests will be run on plant mill effluents using rainbow Trout and another sensitive organism, *D. magna* (water fleas). Quarterly toxicity tests using both rainbow trout and *D. magna* will be required for cooling water effluent streams that contain small quantities of process effluent.

Flow monitoring will be required to provide consistency in establishing total loadings of contaminants.

6.9 Industrial Minerals Sector

Description

Industrial Minerals are those non-fuel minerals and rocks that are mined, processed, and utilized for purposes other than for their metal content (except magnesium).

Two classes of industrial minerals are recognized in Ontario; non-metallic minerals and structural materials.

Non-metallic minerals and rocks mined in Ontario include: barite, gemstones, graphite, gypsum, nepheline syenite, quartz (silica), and talc.

Structural materials consist of naturally occurring sand and gravel, and crushed stone (limestone). Also included are materials that are manufactured from rocks (e.g. lime, cement), or from sediment (e.g. clay brick).

In addition to the non-metallic minerals and stuctural materials, the production of magnesium from dolomite is also included.

The Mineral Industries under consideration include only those operations which discharge wastewater to a surface watercourse. Subsequently, the mining of barite, gemstones and quartz have been excluded from further discussion since their operation is essentially dry. Salt mining has also been omitted since it is included within the Metal Mining and Refining Sector.

Industrial mineral operations that involve the production and direct discharge of wastewater to Ontario's surface waters, are divided into nine subsectors. The unique nature of each subsector is derived from a combination of factors pertaining to mining methods, processing, and wastewater quality. The subsectors have been grouped as follows:

1. Cement
2. Chemical Lime
3. Clay and Shale (clay brick)
4 Graphite
5 Gypsum (plaster of paris, wall board)
6. Magnesium
7. Quarries (nepheline syenite, crushed limestone, traprock)
8. Sand and Gravel
9. Talc (talcum powder)

Status

A draft regulation for the sector has been developed by the Joint Technical Committee and the sign-off meeting was held in June, 1989.

The MISA Advisory Committee has reviewed the draft Effluent Monitoring Regulation for the Industrial Minerals Sector and has recommended its release for public review and comments.

It is anticipated that the regulation will be promulgated in December, 1989.

7.0 SELF MONITORING REQUIREMENTS AND AUDIT PROCESS

All of the plants included in this report monitor their own discharges. The monitoring requirement and schedules are expressed in Control Orders, Certificates of Approval or specific regulations such as the Federal Chloro-Alkali Regulation. Additionally, some plants provide monitoring results on a voluntary basis on a schedule determined in discussions with Ministry staff.. To ensure that the self-monitoring data are accurate, the Ministry of the Environment takes audit samples. The program requirements are fulfilled in one of the following formats:

1. Twenty-four hour composite samples are split between the source and the Ministry, and results are compared.

2. Grab-samples are split between the source and the Ministry, and the samples compared.

3. Samples are taken by the Ministry, and the results are compared to the industry's reported results for an adjacent period.

4. In some cases, where conditions warranted, intensive cross-industry audits were done.

5. For the seven petroleum refineries, intensive on-site inspections were conducted as part of the implementation of the MISA Monitoring Regulation for that sector.

Many industries are intensively monitoring their effluents as part of the MISA pre-regulation phase.

The Ministry of the Environment obtained duplicate samples in conjunction with this program. The resulting data are being used to develop the requirements of the monitoring phase of MISA.

The audit programs and the MISA discussions have revealed, in some cases, substantial differences in sampling and analytical methods that make direct comparisons of results invalid. Those problems continue to be addressed on a case-by-case basis.

It is planned that the Ministry will continue the audit program in the existing format while MISA is being implemented. Each monitoring regulation under MISA has a component that addresses quality control and quality assurance as well as requiring consistent analytical methods and sampling techniques. The Ministry has increased its regional operations and laboratory staff in order to carry out a more extensive audits for MISA.

8.0 DATA COLLECTION SYSTEM (IMIS)

The Industrial Monitoring Information System (IMIS), an electronic storage and retrieval program, was used to collect data for the annual discharge reports. Discharge data from the industrial plants were first submitted to the Ministry of the Environment District Offices, which in turn, transferred the data to the IMIS. Master data files are maintained at the Downsview Computer Centre (DCC) in Toronto and information can be retrieved by the Regional Offices as well as the Head Office. Monthly averages, as reported in Appendix A, were taken from the IMIS data banks.

9.0 NOTES ON TOXICITY

9.1 Toxicity Testing

The acute toxicity or acute lethality test has been used by the Ministry since 1965 as a biological parameter. The results of toxicity testing in this report are based on a procedure common to water quality assessment in Canada. Rainbow trout are exposed to a series of dilutions of the test sample under static conditions and an observation of mortalities over a period of four days (96 hours) is made. From these observations, an LC50 is estimated. LC50 represents the "median lethal concentration". The 96 hour LC50 is the concentration, expressed in either percent (%) effluent, mg/l or other unit of concentration, that kills 50% of the animals during 96 hours of exposure."Chemical examination alone of a complex industrial waste does not provide sufficient information on their effects on the aquatic biota for the protection of the aquatic environment. Moreover, the toxicity of a complex mixture of wastes and chemicals cannot be determined by chemical means." (1).

The best use of biological testing is to determine whether toxicity exists. If an effluent is toxic, the best use of chemistry is to subsequently determine what is the cause of that toxicity. While fundamental to monitoring and control of discharges, chemical analyses represent only an indirect means of determining potential effects in the receiving water. The knowledge of effects caused by various concentrations and mixtures in various kinds of water is a most important yet elusive link between knowledge of effluent concentrations and environmental effects. Toxicity tests on the other hand represent a direct measure of significant environmental impact. To be sure, there are problems of variability and confounding environmental factors such as pH, hardness and temperature, yet these are minor factors compared to the uncertainty of judging environmental impacts based on chemical parameters alone.

Many people equate "toxicity" with acute lethality to fish, since that is a common use, but toxicologists think of toxicity in much broader terms and include bioaccumulation, growth effects, reproduction effects etc. The broader viewpoint is appropriate to any wastes in surface waters. "Toxicity" therefore is any undesirable effect on organisms or ecosystems.

An acute effect comes speedily to a crisis or end-point while a chronic effect is long lasting or continued. The words "acute" and "chronic" in connection with toxicity tests refer to short (acute) and long (chronic) exposures. They require a specific organism as a reference. For Daphnia (water flea), with a life cycle of weeks, acute usually means two days or less while chronic usually means a week or more. However, for trout with a life cycle of years, acute usually means four days or less and chronic means several months or more.

9.2 The Basic Principles

In the basic, short-term acute lethality test, an equal number of test animals are put into each container and are exposed to the sample and dilutions of the sample for 96 hours. The number of dead animals in each effluent container is counted and removed at regular, pre-determined periods. Following the exposure period, the LC50 is calculated. The protocol describing details of the rainbow trout static 96-hr acute lethality test is available from the Aquatic Toxicity Unit from John Lee at (416) 235-5806 or Gary Westlake at (416) 235-5797. In addition to the protocol, it is important that special attention be given to sampling, shipping and storing of samples for toxicity tests.While the total time fromsampling to performing the test must be within five days, no more than two of these days should be spent in shipping or at high temperatures. For each test run, 80 litres of the effluent sample should be sent in plastic pails lined with bags with no head space. The Aquatic Toxicity Unit of the Water Resources Branch maintains facilities at the Rexdale Laboratory to conduct static bioassays.

The unit of measurement of the short-term toxicity test is the estimated median lethal concentration (LC50). This value is the concentration which is lethal to 50% of the test animals at the end of a predetermined exposure interval. Thus, a 96-hour LC50 concentration of a toxicant will kill half the test organisms in 96-hours. It is important that the LC50 not be confused with a "safe concentration" of a toxicant. Usually the safe concentration of a substance or effluent is obtained by multiplying the LC50 value by an appropriate application factor and/or by reviewing sublethal and chronic data for fish and other aquatic organisms.

If all discharges do not kill fish at any point in the environment including at the point of discharge, meaningful improvements in Ontario's water quality will occur. The same philosophy was used in the development of sectoral regulations under the federal Fisheries Act in the early 1970's. These regulations have only been partly effective since the toxicity control was included only as a guideline, or as a Regulation (for new, altered or expanded plants) which has not been fully implemented.

Substances in the effluents which are more persistent or can bioaccumulate to high concentrations in biota will require much greater control. Substances in this category include many of the metals (e.g. mercury) and some higher molecular weight chlorinated organics (e.g. pentachlorophenols).

The rainbow trout is not the most sensitive organism in aquatic environments. It is chosen as a test species partly because it is robust enough to be cultured conveniently in the laboratory while most aquatic species cannot be cultured. If rainbow trout barely survive conditions of a discharge in four days, there are surely many organisms just as important to the aquatic community that would survive for only very short periods. The fixed period of four days is primarily chosen to express results in a reproducible fashion. Yet, because the response to most toxicants is logarithmic with respect to the duration of exposure, the majority of mortalities most commonly occur near the beginning of the test.

Given the complex mixture of substances in effluents, a lack of toxicological data and environmental criteria for many industrial substances, and an inadequate understanding of additive synergistic or antagonistic effects, more and more industrial and regulatory agencies are turning to the use of whole effluent toxicity testing for monitoring and controlling discharges to the aquatic environment. The integrative nature of the test measures the lethality of all the toxicants present acting simultaneously.

Under the Canada-Ontario Environment accord, Ontario has agreed to establish and enforce effluent requirements at least as stringent as the agreed federal national baseline requirements. These requirements as noted above apply immediately to all new or expanded production facilities and were originally intended to apply as rapidly as possible to existing facilities.

The provincial government may impose more stringent standards than the federal requirements and if so, the more stringent requirements will prevail. The Ontario Ministry of the Environment utilizes the fish toxicity test to identify industrial discharges acutely lethal to aquatic organisms as referred to in Policy 3 of the Ministry's Water Management Goals, Policies, Objectives and Implementation Procedures (2).

9.3 Legal Authority

Existing water pollution legislation provides for the Ministry to ensure that discharges are being assessed and controlled with respect to toxicity. A discharge that kills fish is considered to be a "contaminant" under Section 13 of the Environmental Protection Act (4). Several successful prosecutions using toxicity evidence support this contention.

The toxicity test may be used to determine violations of the following provincial legislation (3), (4):

a) The Ontario Water Resources Act; Revised Statutes of Ontario, 1980, Chapter 361, Section 16

16.- (1), Every municipality or person that discharges deposits or causes or permits the discharge of any material of any kind into or in any lake, well, river, pond, spring, stream, reservoir or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of any well, lake, river, pond, spring, stream, reservoir or other water or water course is guilty of an offense. R.S.O. 1980, c. 361, s. 16 (1); 1986, c. 68, s. 23 (1).

b) The Environmental Protection Act; Revised Status of Ontario, 1986, Chapter 141, Section 13

13.- (1), Notwithstanding any other provision of this Act or the regulations, no person shall deposit, add, emit or discharge a contaminant or cause or permit the deposit, addition, emission or discharge of a contaminant into the natural environment that,

a) causes or is likely to cause impairment of the quality of the natural environment for any use that can be made of it;

b) causes or is likely to cause injury or damage to property or to plant or animal life;

(c) causes or is likely to cause harm or material discomfort to any person;

(d) adversely affects or is likely to adversely effect the health of any person;
(e) impairs or is likely to impair the safety of any person;

(f) renders or is likely to render any property or plant or animal life unfit for use by man;

(g) causes or is likely to cause loss of enjoyment of normal use of property; or

(h) interferes or is likely to interfere with the normal conduct of business. R.S.O. 1980, c. 141, s. 13 (1); 1983, c. 52. s. 4.

9.4 Toxicity References

1. Standard Methods for the Examination of Water and Wastewater. 14th ed. 1975. Prepared and published jointly by: American Public Health Association, American Water Works Association, Water Pollution Control Federation.

2. Water Management Goals, Policies, Objectives and Implementation Procedures. Ontario Ministry of the Environment. November, 1978.

3. The Ontario Water Resources Act. Revised Statutes of Ontario, 1980. Chapter 361.

4. The Environmental Protection Act, 1971. Statutes of Ontario 1971. Chapter 86.

5. Protocol To Determine the Acute Lethality of Liquid Effluents to Fish (1983) M.O.E

6. Daphnia magna Acute Lethality Test Protocol (1988) M.O.E

10.0 ENQUIRIES

Enquiries about a specific source's effluent loadings and status of abatement may be directed to:

- the owner of the source
- Ministry's Regional Office or District Offices.

Ministry addresses are provided at the end of the report (Appendix H).

Copies of this report are available from:

Director,
Communications Branch
Ministry of the Environment
135 St. Clair Ave. West (6th Floor)
Toronto, Ontario
M4V 1P5
(416) 323-4324

Enquiries concerning the toxicity section and test results in this report may be directed to the:

Aquatic Toxicity Unit
Water Resources Branch
125 Resources Road
Rexdale, Ontario
(416) 235-5797 or 235-5806

Enquiries concerning this report and the industrial abatement program may be directed to the:

Manager, Project and Data Management Section
MISA Office
Water Resources Branch
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
(416) 323-4886

Manager, Industrial Section
MISA Office
Water Resources Branch
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
(416) 323-2664

Appendix A

Wastewater Discharge Summary Sheets

The tables in Appendix A have been printed directly from the Industrial Monitoring Information System (IMIS). The following example shows the format used for chemical parameters:

PHOSPHOR UNF. TOT
KG/DAY (PPUT)

PHOSPHOR UNF. TOT is 'phosphorus unfiltered total'. Some of the chemical parameter names are abbreviated due to lack of space in the name field in the IMIS data base.

The following list shows parameter names which have been abbreviated or changed substantially from previous years. **Column A** shows those chemical parameter names as they appear in this report while **Column B** shows the same parameter as it appeared in previous industrial discharge reports.

Column A	**Column B**
BOD 5	BIOCHEMICAL OXYGEN DEMAND
CHEM. OX. DEMAND	CHEMICAL OXYGEN DEMAND
K'DAHL N	KJELDAHL NITROGEN
NH3-N	AMMONIA NITROGEN
NH4-N	AMMONIUM ION
NO2 + NO3N	NITRITES AND NITRATES
NO3-N	NITRATES
PO4	PHOSPHATES
RESIDUE FILTERED	DISSOLVED SOLIDS
RESIDUE PARTIC.	SUSPENDED SOLIDS
RESIDUE TOTAL	TOTAL SOLIDS
SOLVENT EXTRACT.	OIL AND GREASE
TEMP RISE	TEMPERATURE RISE

KG/DAY in this example is kilograms per day and represents a loading value. Other units used are M3/DAY (cubic metres day) for flow; MG/L (milligrams per litre), UG/L (micrograms per litre) and NG/L (nanograms per litre) for concentration.

(PPUT) is the Ministry Laboratory parameter code for 'phosphorus unfiltered total'. Further information on parameter codes used in the discharge data tables is available from:

Laboratory Services Branch,
Laboratory Computer Systems -
Quality Assurance Section.
125 Resources Road
Rexdale, Ontario
M9W 5L1
Phone: (416) 235-5840

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Abitibi-Price Inc.
& PLANT LOCATION: Iroquois Falls

IMIS NO.: 0000860403

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 031, 271

RECEIVING WATERBODY: DIRECT: Abitibi River
INDIRECT: Moose River to James Bay

DESCRIPTION OF ACTIVITY: Logs and wood chips (softwoods - black spruce, jack pine, balsam fir) are converted into newsprint by two different processes - stone groundwood and sulphite. The newsprint is brightened by hydrosulphite.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood, paper) and a variety of organic compounds in the spent sulphite cooking liquor.

EFFLUENT TREATMENT: In-mill screens remove some bark and groundwood fiber prior to the clarifiers. Two clarifiers are used to remove solids.

DISCHARGE TYPE: Continuous outfall.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): In 1985 a control order was issued to the company setting limits of 9.0 tonnes/day and 69.0 tonnes per day for suspended solids (RSP) and Biochemical Oxygen Demand (BOD5) respectively. Further the company must maintain a dissolved oxygen concentration of 47 per cent saturation in the Abitibi River to its confluence with the Frederickhouse River.

EXCEEDANCES: None company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: In 1988, two trout bioassays indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 22.7% and 23.2%.

08/02/89

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000086-04-0(3)    ABITIBI-PRICE INC IROQUOIS FALLS MILL              IROQOIS FALLS
CONTROL POINT: 0100 DATA FOR 1988                                                                                                        REPORT DATE: 07 AUG 89
FLOW/LOADING        PARAMETERS                JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC    ANNUAL     TOTAL
                                                                                                                                                   AVERAGE  EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------------
BOD 5 DAY             ACTUAL               45000    45200    45800    49600    49100    43800    32700    41800    48100    45400    39300    36300    43508
KG /DAY (BOD5 )     REQUIREMENT            S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C

RESIDUE PARTIC.       ACTUAL                5000    45200     5300     4500     3400     4800     3300     3600     4500     5000     4100     4800     7792
KG /DAY (RSP )      REQUIREMENT            S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
*********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
```

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME:
& PLANT LOCATION: Abitibi-Price-Provincial Papers Division
(previously reported as Provincial Papers Ltd. - a Division of Abitibi-Price Inc.)
Thunder Bay

IMIS NO.: 0000860106

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Fine papers - coated and uncoated - are made from groundwood pulp using softwoods (black spruce, white spruce and balsam fir) and purchased pulp. Hydrogen peroxide is used to whiten pulp.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and many organic compounds from the pulping processes.

EFFLUENT TREATMENT: Clays are partially recovered by an in-mill system. High solids streams are treated by a clarifier. All mill effluent passes into a settling lagoon.

DISCHARGE TYPE: continuous surface

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 7.3 metric tonnes per day or alternately 22 kg/metric tonne of product and total suspended solids - 2.5 metric tonnes per day or 50 milligrams per litre)

MOE OR FEDERAL GUIDELINES: MOE guideline for phosphorus.

EXCEEDANCES: None.

REMEDIAL ACTIONS: None

COMMENTS: Six trout bioassays conducted in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

07/31/89

000086-01-0(6) ABITIBI-PRICE PROVINCIAL PAPER DIV. THUNDER BAY REPORT DATE: 19 OCT 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	44320	47972	46289	48770	47606	51686	52783	58084	52852	54762	58133	54727	51499	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	2970	3550	3470	4100	4090	4140	3750	4070	3750	4030	4210	3500	3803	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0
PHOSPHOR UNF.TOT.	ACTUAL	1.4	2.9	1.9	3	2.6	1.3	1	1.3	1.7	0.7	1.7	2.7	1.85	
KG /DAY (PPUT)	GUIDELINE	44.3	48	46.3	48.8	47.6	51.7	52.8	58.1	52.9	54.8	58.1	54.7	51.5	0
RESIDUE PARTIC.	ACTUAL	840	960	880	730	1380	780	880	870	1360	1360	1150	820	1000	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Abitibi-Price Inc. - Fort William Division
Thunder Bay

IMIS NO.: 0000860205

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Thunder Bay (Lake Superior)
INDIRECT:

DESCRIPTION OF ACTIVITY: Newsprint is made mainly from softwoods (black spruce, balsam fir) logs and chips by using the stone groundwood and Sulphonated Chemical Mechanical processes. Newsprint is brightened by hydrosulphite.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre etc) and organic compounds from the pulping processes.

EFFLUENT TREATMENT: Clarifier and a lagoon handle woodroom effluent. Two settling lagoons handle the rest of the mill effluent.

DISCHARGE TYPE: three continuous surface discharges

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings on the total mill effluent discharged (BOD - 42.5 kg per metric ton of product produced or alternatively 14.5 metric tons per day averaged over any 30 consecutive working days and Suspended Solids of 50 mg per litre or alternatively 2.5 metric tons per day averaged over any 30 consecutive working days)

MOE OR FEDERAL GUIDELINES: MOE guideline for phosphorus.

EXCEEDANCES: The seven reported daily suspended solids (RSP) exceedances are based on one of the Control Order limits. However, the company must exceed both daily limits and the 30 rolling average. Based on these requirements there were six Control Order exceedances for suspended solids during August and September 1988.

REMEDIAL ACTIONS: Suspended solids exceedances are controlled by pH adjustment system installed in May 1988.

COMMENTS: In 1988, two sampling points proved to be acutely lethal. Seven trout bioassays indicated the Bark Lagoon effluent to have been acutely lethal to the fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 8.5% to 10.0%. Eleven trout bioassays indicated the final Sewer Lagoon effluent to have been acutely lethal to fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 1.0% to 10.0%.

07/31/89

000086-02-0(5)   ABITIBI-PRICE FORT WILLIAM DIV.   THUNDER BAY   REPORT DATE: 19 OCT 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	28357	30382	26330	23401	26002	23947	26420	27958	26043	22389	20829	21817	25323	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	13200	14900	14400	12900	12700	9500	10200	11300	11500	9600	11100	11200	11875	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0
PHOSPHOR UNF.TOT.	ACTUAL	21.94	21.12	19.91	22.66	26.21	26.89	29.45	30.16	19.15	19.38	17.57	16.87	22.6	
KG /DAY (PPUT)	GUIDELINE	28.4	30.4	26.3	23.4	26	23.9	26.4	28	26	22.4	20.8	21.8	25.3	0
RESIDUE PARTIC.	ACTUAL	1830	2180	2280	1640	1980	1740	2090	2510	1630	1440	1570	1640	1878	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	2

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Abitibi-Price Inc. - Thunder Bay Division
& PLANT LOCATION: Thunder Bay

IMIS NO.: 0000860007

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood (black spruce, balsam fir, jack pine) logs are made into newsprint by the stone groundwood and sulphite pulping processes. Hydrosulphite is used to brighten newsprint.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and many organics (mainly the spent sulphite cooking liquor).

EFFLUENT TREATMENT: A woodroom clarifier and two parallel lagoons (2.75 acres each) remove solids.

DISCHARGE TYPE: continuous surface

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 24.5 metric tonnes/day or 57 kg per metric tonne of product and TSS - 2.0 metric tonnes/day or 50 milligrams per litre)

MOE OR FEDERAL GUIDELINES: MOE guidelines for phosphorus.

EXCEEDANCES: The six reported monthly BOD5 exceedances are based on one of the two Control Order limits, however, the company must exceed both daily limits, based on a 30 day rolling average. Based on these requirements there were nine daily control order exceedances during July and August 1988.

REMEDIAL ACTIONS: The company installed in February 1989, a chemical cooling additive system at the digester to help control BOD_5 loses.

COMMENTS: Six trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 13.4% to 41.4%.

07/31/89

000086-00-0(7)   ABITIBI-PRICE THUNDER BAY DIV.   THUNDER BAY   REPORT DATE: 19 OCT 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	38163	41688	40717	42020	40561	41777	44168	44102	42658	44969	41718	39439	41832	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	21100	23000	23500	24800	24200	24700	25900	26600	21600	26400	24900	21300	24000	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	2
PHOSPHOR UNF.TOT.	ACTUAL	11.4	12.6	11.8	12.6	13.4	12	13.4	16.3	11.3	16.2	12.8	14.9	13.2	
KG /DAY (PPUT)	GUIDELINE	38.2	41.7	40.7	42	40.6	41.8	44.2	44.1	42.7	45	41.7	39.4	41.8	0
RESIDUE PARTIC.	ACTUAL	1480	1720	1770	1540	1430	1260	1830	1380	1420	1510	1570	1940	1571	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Agnico Eagle Mines Ltd., (Penn Mill)
& PLANT LOCATION: Cobalt

IMIS NO.: 0001520105

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0593, 295

RECEIVING WATERBODY: DIRECT: Giroux Lake
INDIRECT: 8 km from Montreal R.

DESCRIPTION OF ACTIVITY: Gravity and flotation concentrates produced fr[illegible]er ore.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of silver, cobalt, copper etc.

EFFLUENT TREATMENT: Tailings impoundment in former lake basin (Glen Lake).

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Compliance determined by 'Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981.

EXCEEDANCES: Yes. Arsenic.

REMEDIAL ACTIONS: Negotiations are in process to revamp tailings disposal facilities.

COMMENTS: Company intends to cease operations in 1989 for an indefinite period. An inter-ministerial committee is negotiating a decommissioning plan.

08/01/89

000152-01-0(5)   AGNICO EAGLE MINES LIMITED - PENN MILL   COBALT

CONTROL POINT: 0100 DATA FOR 1988   REPORT DATE: 25 SEP 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL				35060	1190.41	1286	1139	1146	1087	32937	37235	1017.87	12455	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL				0.587	0.317	0.814	1.5	0.98	1.39	8	11.41	0.676	2.85	
KG /DAY (ASUT)	GUIDELINE				17.5	0.595	0.643	0.57	0.573	0.544	16.5	18.6	0.509	6.23	5
COBALT UNF.TOT.	ACTUAL				0.058	0.06	0.013	0.01	0	0.039	0.098	0	0.043	0.036	
KG /DAY (COUT)	GUIDELINE				S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
COPPER UNF.TOT.	ACTUAL				0.058	0.06	0	0	0	0	0	0	0	0.013	
KG /DAY (CUUT)	GUIDELINE				53.1	11.9	1.29	1.14	1.15	1.09	32.9	37.2	10.2	12.5	0
IRON UNF.TOT.	ACTUAL				0.134	1.571	0.159	0	0	0.174	23.12	16.01	0.819	4.67	
KG /DAY (FEUT)	GUIDELINE				S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
NICKEL UNF.TOT.	ACTUAL				0.058	0.068	0.013	0	0	0	0	0	0	0.015	
KG /DAY (NIUT)	GUIDELINE				S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
PH	ACTUAL	8.13	8.16	8.21	8.32	8.19	7.95	7.98	7.62	7.85	8.17	7.6	7.29	7.96	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL				8.18	6.75	1.31			2.175	247	174.2	8.28	64	
KG /DAY (RSP)	GUIDELINE				526	17.9	19.3			16.3	494	559	15.3	235	0

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 28, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Agnico Eagle Mines Ltd., (Refinery)
& PLANT LOCATION: Cobalt

IMIS NO.: 0001520006

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0593, 295

RECEIVING WATERBODY: DIRECT: 5.5 km from Farr Creek
INDIRECT: 109 km from Montreal R.

DESCRIPTION OF ACTIVITY: Refining and smelting of silver concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of silver, cobalt, copper, arsenic etc.

EFFLUENT TREATMENT: Cyanide destruction

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Compliance determined by 'Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981'.

EXCEEDANCES: Yes. Arsenic, cyanide, mercury.

REMEDIAL ACTIONS: Company intends to cease operations in 1989 for an indefinite period.

COMMENTS:

08/01/89

000152-00-0(6) AGNICO EAGLE MINES LIMITED SILVER DIVISION COBALT

CONTROL POINT: 0100 DATA FOR 1988

REPORT DATE: 25 SEP 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	83.12	66.68	64.35	87.86	86.75	94.16	94.09	112.65	114.69	107.91	114.6	110.69	94.8	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.058	0.001	0.017	0.04	0	0.166	0.217	0.015	0.079	0	0	0.131	0.06	
KG /DAY (ASUT)	GUIDELINE	0.042	0.033	0.032	0.044	0.043	0.047	0.047	0.056	0.037	0.054	0.057	0.055	0.047	5
CYANIDE FREE	ACTUAL	0.029	0.007	0.006	0.018	0.109	0.219	0.541	0.377	0.04	0.162	0.115	0.3	0.16	
KG /DAY (CCNFUR)	GUIDELINE	0.166	0.133	0.129	0.176	0.174	0.188	0.188	0.225	0.229	0.216	0.229	0.221	0.19	4
COBALT UNF.TOT.	ACTUAL	0.021	0.035	0.006	0.004	0.036	0.097	0.082	0.012	0.151	0.078	0.047	0.084	0.054	
KG /DAY (COUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
COPPER UNF.TOT.	ACTUAL	0.004	0.003	0.003	0.004	0.004	0.003	0.002	0	0.015	0	0.003	0.001	0.004	
KG /DAY (CUUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
IRON UNF.TOT.	ACTUAL	0.009	0.053	0.003	0.008	0.399	1.273	1.59	1.163	0.712	0.163	0.732	0.236	0.528	
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
MERCURY UNF.TOT.	ACTUAL	0.00001	0.00001	0.00001	0.00001	0.00001	0.001	0.00015	0.00043	0.00016	0.00017	0.00002	0.00018	0.00018	
KG /DAY (HGUT)	GUIDELINE	0.00008	0.00007	0.00006	0.00009	0.00009	0.009	0.00009	0.00011	0.00011	0.00011	0.00011	0.00011	0.00008	6
NICKEL UNF.TOT.	ACTUAL	0.009	0.011	0.005	0.004	0.03	0.209	0.291	0.079	0.019	0.006	0.027	0.097	0.066	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
PH	ACTUAL	8.12	7.23	7.98	8.16	8.2	7.32	7.12	7.06	7.12	6.88	7.53	7.68	7.53	
(PH)	GUIDELINE														0
RESIDUE TOTAL	ACTUAL	62.01	59.55	65.7	107.45	147.14	353.91		318.59	318	236	235.8	163	188	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 15 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 69% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

IMIS NO.: 0000040006

COMPANY NAME: Algoma Steel
& PLANT LOCATION: (previously reported as: The Algoma Steel Corporation Ltd.)
Sault Ste. Marie

DISTRICT: Sault Ste. Marie

MOE REGION: Northeast

SIC CODE: 291, 292, 298

INDUSTRIAL SECTOR: Iron and Steel

RECEIVING WATERBODY: DIRECT: St. Mary's River
INDIRECT: East Davignon Creek

DESCRIPTION OF ACTIVITY: Iron (blast furnaces & foundry) from coal (coke) limestone and iron concentrates/pellets and steel.

EFFLUENT CHARACTERISTICS: Contains suspended solids (coal, coke, iron) and coal tar compounds (ammonia, cyanide, oil and grease, phenols)

EFFLUENT TREATMENT: Clarifiers, settling basins and brill skimmers.

DISCHARGE TYPE: continuous; 7 outfalls; terminal basin discharges through a submerged diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): An Amending Control Order was issued on September 23, 1988 establishing the following abatement schedule and limits:

Terminal Basin - Feb. 15, 1989; Ammonia and cyanide limited in combination based on toxicity considerations

- Solvent Extractables 1589 kg/day; susp. solids 7355 kg/day are in effect.
- Jun. 30, 1989 Phenolics 22.7 kg/day
- Mar. 31, 1990 Solvent Extractables 1023 kg/day; susp. solids 5108 kg/day

EXCEEDANCES: Yes. There were 6 exceedances of the suspended solids (RSP) requirement and 10 exceedances of the solvent extractables (SOLEXT) requirement. Referred to Investigation and Enforcement Branch. Unenforceable because of sampling procedures. New Amending Order required modifing sampling procedures/equipment by Apri. 15, 1989. Sampling procedures/equipment to be in place and operating by April 15, 1989.

REMEDIAL ACTIONS: An amending Control Order was issued on September 23, 1988. A Certificate of Approval for the construction of a dual media filtration plant was issued on January 23, 1989, the scheduled completion date is March 1990. It is expected that this will bring the effluent into compliance for suspended solids and solvent extractables.

COMMENTS: During the early part of 1988, a total of 26 effluents from Algoma Steel Co. were tested for toxicity to rainbow trout. The following summaries apply to effluent locations in 1988.Five of nine trout bioassays indicated the Terminal Basin effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 7.0% to 52.7%. Six trout bioassays indicated the 60" Blast Furnace sewer effluent to have been non-acutely lethal to the test fish.Six of seven trout bioassays indicated the Bar and Strip Lagoon effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 7.0% to 92.7%.Four trout bioassays indicated the East Davignon Creek effluent to have been non-acutely lethal to the test fish.
08/01/89

000004-00-0(6)   THE ALGOMA STEEL CORPORATION LIMITED   STEEL WORKS   SAULT STE MARIE

REPORT DATE: 04 JULY 89

SUMMARY FOR EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA   DISCHARGED INTO: 02/002/   LAKE HURON

INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0500 0600 0700

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	501388	484598	496430	555895	569988	484068	425265	338435	461632	486181	493909	462996	480065.4	
M3 /DAY (FTFLOW)	GUIDELINE														
CYANIDE FREE	ACTUAL	136.9	116.7	88	64.3	47.6	28.1	46.5	44.8	37.7	50	55.6	58.1	64.5	
KG /DAY (CCNFUR)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	17064		11609	19272	6117	8455	12040	6292	14238	11591	17784	16524	12817	
KG /DAY (COD)	GUIDELINE														
IRON FIL.TOT.	ACTUAL	N/D	N/D	N/D	N/D	N/D	0.3	N/D	0.27	0.38	N/D	0.49	N/D	0.36	
KG /DAY (FEFT)	GUIDELINE														0
IRON UNF.TOT.	ACTUAL	2612.69	3014.09	2196.69	4470.3	3536.3	1987.3	1412.91	1209.38	1402.3	1139.29	2350	2525.5	2321	
KG /DAY (FEUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	3015.1	2992.6	3126.3	4173.2	3586.9	2968.9	2717.2	2444	3613.2	3081.5	10399	3555	3806	
KG /DAY (NNHTUR)	GUIDELINE														
PH	ACTUAL	8.41427	8.24284	8.1857	8.01427	8.14284	8.34284	8.32856	8.26665	8.2	8.4	8.42856	8.4	8.28	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL	221.3	142.1	163	248.73	353.5	113.6	49.3	38.5	121.9	322.6	81.1	67	160	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	42099	41992	41848	57799	60414	43320	36740	49187	24144	20082	44886	37684	41683	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7861	7682	10632	11825	9737	8585	6154.69	5568.1	6757.4	8982.29	10065.6	9245.69	8591	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	2151	1038	1827	2473	3830	1704	1966.2	2429.2	4770	3784.9	2447.2	1277.2	2475	
KG /DAY (SOLEXT)	GUIDELINE														

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SULPHIDE UNF.REAC    ACTUAL        N/D    N/D    N/D    N/D    N/D    N/D    N/D    N/D    N/D    N/D    N/D    N/D
KG /DAY (SSIDUR)   GUIDELINE

SULPHATE UNF.REAC    ACTUAL               644    693    792                         297   1239    595   1387    496    768
KG /DAY (SSO4UR)   GUIDELINE

ZINC FIL.TOT.        ACTUAL       47.6   38.6   40.6   39.1   19.3   25.3   12.4  N/D     1.98   6.94   21.8   17.8   24.7
KG /DAY (ZNFT )    GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
****************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS  31 OUT OF 52, FOR A TOTAL COMPLIANCE RECORD OF  40% IN 1988.
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000004-00-0(6) THE ALGOMA STEEL CORPORATION LIMITED STEEL WORKS SAULT STE MARIE

CONTROL POINT: 0500 DATA FOR 1988

REPORT DATE: 04 JULY 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5425	5425	5425	5425	5425	5425	5425	5425	5425	5425	5425	5425	5425	
M3 /DAY (FTFLOW)	GUIDELINE														
IRON FIL.TOT.	ACTUAL						0.3		0.27	0.38		0.49		0.36	
KG /DAY (FEFT)	REQUIREMENT						5.43		5.43	5.43		5.43		5.43	0
IRON UNF.TOT.	ACTUAL	0.5	0.8	0.4	0.5	0.9	1.5	0.81	0.98	1.1	0.49	1		0.848	
KG /DAY (FEUT)	GUIDELINE														
PH	ACTUAL	7.8	7.8	7.8	7.9	7.8	7.9	8.1	8.1	8	7.9	8	7.9	7.92	
(PH)	GUIDELINE														0
RESIDUE FILTERED	ACTUAL	293	304	331	342	396	309	315	401	363	326	206	401	332	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	25	5	5	11	5	16	5.4	10.8	21.7	10.8	10.8	10.8	11.4	
KG /DAY (RSP)	REQUIREMENT	81.4	81.4	81.4	81.4	81.4	81.4	81.4	81.4	81.4	81.4	81.4	81.4	81.4	
SOLVENT EXTRACT.	ACTUAL	5								5.4	16.3			8.9	
KG /DAY (SOLEXT)	REQUIREMENT	81.4								81.4	81.4			81.4	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 17, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

000004-00-0(6) THE ALGOMA STEEL CORPORATION LIMITED STEEL WORKS SAULT STE MARIE
CONTROL POINT: 0700 DATA FOR 1988 REPORT DATE: 04 JULY 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	355497	344132	362771	410049	424142	338222	280034	242301	316401	340950	348678	317765	340078.5	
M3 /DAY (FTFLOW)	GUIDELINE														
CYANIDE FREE	ACTUAL	67.5	89.5	61.7	41	38.1	23.7	16.8	12.1	25.3	30.7	24.4	31.8	38.6	
KG /DAY (CCNFUR)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	17064		11609	19272	16117	8456	12040	6292	14238	11591	17784	16524	12582	
KG /DAY (COD)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	2513	2818	2024	4265	3402	1881	1210	1123	1202	978	2172	2018	2134	
KG /DAY (FEUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	2915	2891	3047	4084	3520	2909	2632	2444	3575	3027	3313	3495	3154	
KG /DAY (NNHTUR)	GUIDELINE														
PH	ACTUAL	8.3	8.2	8.2	8.1	7.9	8	7.8	7.8	8	8.2	8.3	8.2	8.08	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL	220	141	163	246	353	113	49.3	38.5	121.2	167.7	80.2	62	146	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	34838	34069	32649	44695	50049	34499	28280	39930	17718	15000	38357	29870	33776	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7110	6539	9795	10661	8483	7441	5320	4840	6012	7159	8717	7944	7502	
KG /DAY (RSP)	REQUIREMENT	7355	7355	7355	7355	7355	7355	7355	7355	7355	7355	7355	7355	7355	6
SOLVENT EXTRACT.	ACTUAL	2133	1032	1814	2460	3817	1691	1960	2423	4746	3750	2441	1271	2462	
KG /DAY (SOLEXT)	REQUIREMENT	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	10

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 16 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 42% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: American Standard, Div of Wabco Standard Inc., Cambridge

IMIS NO.: 0001470004

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 3041, 3042

RECEIVING WATERBODY: DIRECT: Speed River to Grand River
INDIRECT: 159 km to Lake Erie

DESCRIPTION OF ACTIVITY: Sinks, tubs, etc. are fabricated and enamelled.

EFFLUENT CHARACTERISTICS: Contains heavy metals

EFFLUENT TREATMENT: pH adjustment, precipitation, flocculation and sedimentation 5 days a week, 230 days a year

DISCHARGE TYPE: continuous flow 7 am to 12 pm through a drain

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Monthly requirements are based on stream assimilation study. Current C. of A issued April 1970 requires discharge meat Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) objectives at all times.

EXCEEDANCES: yes. One minor pH exceedance.

REMEDIAL ACTIONS: The existing WWTP is capable of operating without exceedances. No action required since only one minor pH exceedance (9.8 versus 9.5) likely due to operator error.

COMMENTS: Reported loadings are based on measured flow rate.

07/22/89

000147-00-0(4)   AMERICAN STANDARD DIVISION OF WABCO STANDARD INC   CAMBRIDGE   REPORT DATE: 10 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	262.39	264.9	251.5	352.47	251.5	254	226	126	190	190	190	189.9	229	
M3 /DAY (FTFLOW)	REQUIREMENT	454	454	454	454	454	454	454	454	454	454	454	454	454	0
IRON UNF.TOT.	ACTUAL	0.354	0.132	0.069	0.095	0.035	0.069	0.054	0.049	0.12	0.24	0.03	0.02	0.103	
KG /DAY (FEUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0
NICKEL UNF.TOT.	ACTUAL	0.018	0.02	0.01	0.014	0.02	0.01	0.002	0.016	0.03	0.01	0.03	0.02	0.017	
KG /DAY (NIUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0
PH	ACTUAL	8.25	8.15	8.6	8.7	8.6	9.1	9.6	8.5	8.1	8.4	8.3	8.6	8.59	1
(PH)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL	4.264	5.43	2.515	4.582	2.52	4.58	2.262	1.138	1.19	1.9	2.19	1.9	2.87	
KG /DAY (RSP)	REQUIREMENT	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	0
ZINC UNF.TOT.	ACTUAL	0.016	0.015	0.13	0.018	0.038	0.01	0.007	0.004	0.007	0.005	0.02	0.009	0.023	
KG /DAY (ZNUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Atlas Speciality Steel
(previously reported as: Atlas Steel Company)
Welland

MOE REGION: West Central

INDUSTRIAL SECTOR: Iron and Steel

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

IMIS NO.: 0001610005

DISTRICT: Welland

SIC CODE: 291

DESCRIPTION OF ACTIVITY: Secondary steel industry; recycle scrap metal for melting in electric furnace. Various grades of stainless steel made. Not an integrated mill. No coking operations or blast furnaces.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Contact and non-contact cooling water treated at two filtration plants. Pickling acids and rinses treated at waste acid solidification plant. Tertiary treatment consists of pH adjustment and heavy metal (chrome, lead) removal and filtration.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges In Ontario

EXCEEDANCES: Company exceeded total suspended solids (RSP) and cadmium guidelines.

REMEDIAL ACTIONS:

COMMENTS: Company has complied with proposed Section 17 Order in 1989. Order not issued as company met conditions voluntarily. Sampling not done by company for months of April, May, June/88. Company shut down for the month of May, 1988

In 1988, one trout bioassay indicated the final effluent to have been non-acutely lethal to the test fish.

07/19/89

000161-00-0(5)   ATLAS STEEL COMPANY LIMITED   WELLAND
CONTROL POINT: 0100 DATA FOR 1988   REPORT DATE: 05 AUG 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	39600	35000	27908				28140	37481	39876	39947	37630	30387	35108	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.26	7.96	7.95				7.69	8.22	9.88	8.19	8.29	8.14	8.18	
(PH)	GUIDELINE	S/C	S/C	S/C				S/C	S/C	S/C	S/C	S/C	S/C		
BOD 5 DAY	ACTUAL	0	0	0				0	0	0	0	0	0	0	
KG /DAY (BOD5)	GUIDELINE	594	525	419				422	562	598	599	564	456	527	0
CADMIUM UNF.TOT.	ACTUAL	0.0792	0.7	0.566				0.1405	0.187	0.2388	0.2338	0.1875	0.1515	0.276	
KG /DAY (CDUT)	GUIDELINE	0.4	0.35	0.28				0.28	0.37	0.4	0.4	0.38	0.3	0.35	2
CHROMIUM UNF.TOT.	ACTUAL	5.544	2.1	1.39				7.587	1.496	14.328	1.194	2.25	1.515	4.16	
KG /DAY (CRUT)	GUIDELINE	39.6	35	27.9				28.1	37.5	39.9	39.9	37.6	30.4	35.1	0
IRON UNF.TOT.	ACTUAL	384.12	45.5	63.94				365.3	52.36	1393	47.76	412.5	57.57	314	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0	0	0				0	0	0	0		0	0	
KG /DAY (PHNOL)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0	0					0	0	0	0	0	0	0	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1520.64	224	77.84				809.28	108.46	3502.4	131.34	915	139.38	825	
KG /DAY (RSP)	GUIDELINE	594	525	419				422	562	598	599	564	456	527	4
SOLVENT EXTRACT.	ACTUAL	110.8	35	27.8				28.1	37.4	250.74	39.8	37.5	30.3	66.4	
KG /DAY (SOLEXT)	GUIDELINE	594	525	419				422	562	598	599	564	456	527	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 45, FOR A TOTAL COMPLIANCE RECORD OF 87% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ault Foods Limited
& PLANT LOCATION: Winchester

IMIS NO.: 0063240709

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1049

RECEIVING WATERBODY: DIRECT: Castor river
INDIRECT: Ottawa River

DESCRIPTION OF ACTIVITY: Manufacture of butter, and cheese and dried powder milk-based products.

EFFLUENT CHARACTERISTICS: Effluent generated from processing, cleaning and cooling activities. Contaminants in wastewater primarily organic in nature.

EFFLUENT TREATMENT: Aerobic biological treatment including sludge separation and effluent polishing.

DISCHARGE TYPE: Annual spring discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): June 19, 1986 #4-078-85-866. Stage 1 & 2 Performance Compliance Requirements:

Parameters	Effluent Concentrations mg/l	Annual Effluent Waste Loadings kg/year
BOD5, Total	40	6,460
Suspended Solids	40	6,460
Total Phosphorus	10	1,615
Ammonia-Nitrogen	15	2,425
Hydrogen Sulphide	1	162

EXCEEDANCES: Yes, suspended solids (RSP) parameter exceeded.

REMEDIAL ACTIONS: Company operated under Certificate of Approval for a staged upgrading and extension to the existing sewage treatment facilities. Stage 3 conditions for performance compliance requirements come into effect on January 31,1989. Occurrence report filed for exceedance of suspended solids parameter.

COMMENTS: Company granted approval for emergency fall discharge (Nov 1988) to allow Stage 3 construction works to proceed.

10/16/89

006324-07-0(9)   AULT FOODS LTD.   WINCHESTER   REPORT DATE: 18 OCT 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL TOTAL	TOTAL EXCEEDANCES
FLOW	ACTUAL				169101							45460		214561	
M3 /YR (FTFLOW)	REQUIREMENT				161700							161700		161700	1
BOD 5 DAY	ACTUAL				3974							95.5		4070	
KG /YR (BOD5)	REQUIREMENT				6460							6460		6460	0
NH3-N TOTAL	ACTUAL				1674.1							36.4		1710.5	
KG /YR (NNHTUR)	REQUIREMENT				2425							2425		2425	0
PHOSPHOR UNF.TOT.	ACTUAL				526							136		662	
KG /YR (PPUT)	REQUIREMENT				1615							1615		1615	0
RESIDUE PARTIC.	ACTUAL				11964							1591		13555	
KG /YR (RSP)	REQUIREMENT				6460							6460		6460	1
SULPHIDE UNF.REAC	ACTUAL				29.5							4.5		34	
KG /YR (SSIDUR)	REQUIREMENT				162							162		162	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DIS^HARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Beaver Wood Fibre Company
Thorold

MOE REGION: West Central

IMIS NO.: 0001620004

INDUSTRIAL SECTOR: Pulp and Paper Mill

DISTRICT: Welland

RECEIVING WATERBODY:
DIRECT: Beaverdams Creek to Twelve Mile Creek
INDIRECT: 13.3 km to Lake Ontario

SIC CODE: 271

DESCRIPTION OF ACTIVITY: Paperboard is made from pulp and clean wastepaper

EFFLUENT CHARACTERISTICS: contains suspended solids

EFFLUENT TREATMENT: Primary clarifier on total mill effluent removes solids. Spills of broke (pulp in water) and rejects from pulp cleaning are either recycled or sent to landfill. Sludge handling and mill effluent pumping systems were duplicated to minimize clarifier bypassing.

DISCHARGE TYPE: Continuous through a submerged outfall

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Target loads set by Pulp and Paper Committee consistent with primary treatment technology

EXCEEDANCES: Company meets guideline limits.

REMEDIAL ACTIONS: Certificate of Approval to be issued for compliance with Control Order. will have enforceable limits.

COMMENTS: MOE survey was reviewed by company's consultant June/88. Order to be [illegible] fall 1989 requiring secondary treatment. No sampling was conducted in February and March, 1988

In 1988, one of three trout bioassays indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 56.9%.

07/19/89

000162-00-0(4) BEAVER WOOD FIBRE COMPANY LTD. THOROLD REPORT DATE: 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	14000			14400	14250	14000	15800	16200	15100	14000	14400	13600	14575	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1050			1152	1568	1400	1580	1847	1359	1102	1382	1680	1412	
KG /DAY (BOD5)	GUIDELINE	2500			2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	0

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE FILTERED	ACTUAL	2800			3024	2137	1750	2528	2592	3020	2380	2016	2176	2442	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	420			504	542	672	474	648	830	588	634	612	592	
KG /DAY (RSP)	GUIDELINE	904			904	904	904	904	904	904	904	904	904	904	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	B F Goodrich Niagara Falls	IMIS NO.:	0000370304
MOE REGION:	West Central	DISTRICT:	Welland
INDUSTRIAL SECTOR:	Organic Chemicals, Synthetic Fibres	SIC CODE:	3731
RECEIVING WATERBODY:	DIRECT: Welland River to Niagara River INDIRECT:		

DESCRIPTION OF ACTIVITY: Polyvinyl chloride resins are made from purchased vinyl chloride monomer

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Conventional secondary sewage treatment plant followed by aerated lagoon followed by facultative lagoon. Wastewater from one plant is treated by an aeration pond and polishing lagoon. From another plant, wastewaters are equalized, neutralized and treated by an activated sludge process before discharge to the aeration pond.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Limits set by MOE, Certificate of Approval and Federal guidelines. VCM (vinyl chloride monomer) is a federal guideline

EXCEEDANCES: None

REMEDIAL ACTIONS:

COMMENTS: Company issued a new Certificate of Approval in 1989 with enforceable discharge criteria.

In 1988, three trout bioassays indicated the final effluent to have been non-acutely lethal to the test fish.

06/23/89

000037-03-0(4) B.F.GOODRICH NIAGARA FALLS REPORT DATE. 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2088	2624	2260	2041	2425	2355	2408	2527	2415	2862	2869	2511	2449	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.5	6.6	6.5	6.6	6.8	7	6.8	6.7	6.7	6.6	6.5	6.7	6.67	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	24.93	13.05	6	8	15	20	17	14	25	27	28.55	26	18.7	
KG /DAY (BOD5)	GUIDELINE	31.3	39.4	33.9	30.6	36.4	35.3	36.1	37.9	36.2	42.9	43	37.7	36.7	0
NH4-N FIL.REAC	ACTUAL	3.58	0.6	0.85	2.01	3.3	1.02	3.88	0.28	1.46	2.24	0	1.09	1.69	
KG /DAY (NH4FR)	GUIDELINE	20.9	26.2	22.6	20.4	24.3	23.6	24.1	25.3	24.2	28.6	28.7	25.1	24.5	0
PHOSPHOR UNF.TOT.	ACTUAL	0.17	0.23	0.02	0.05	0.78	1.09	0.46	0.05	0.31	0.6	0	0.1	0.322	
KG /DAY (PPUT)	GUIDELINE	2.09	2.62	2.26	2.04	2.43	2.36	2.41	2.53	2.42	2.86	2.87	2.51	2.45	0
RESIDUE PARTIC.	ACTUAL	18.18	26.26	25.8	12.12	35.14	20.54	0	0	25.6	0	0	0	13.6	
KG /DAY (RSP)	GUIDELINE	31.3	39.4	33.9	30.6	36.4	35.3	36.1	37.9	36.2	42.9	43	37.7	36.7	0
RESIDUE TOTAL	ACTUAL	890.45	915.09	576.98	536.54	746.18	502.61	715.96	561.15	535.88	967.32	1065.27	439.79	704	
KG /DAY (RST)	GUIDELINE														
VINYL CHLORIDE	ACTUAL	0.53	0.31	0.28	0.26	0.08	0.1	0.18	0.06	0.03	0.1	0.09	0.2	0.185	
KG /DAY (X1VCL)	GUIDELINE	2.09	2.62	2.26	2.04	2.43	2.36	2.41	2.53	2.42	2.86	2.87	2.51	2.45	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Blackstone Industrial Products. Ltd Stratford	IMIS NO.: 0001850007
MOE REGION:	Southwest	DISTRICT: London
INDUSTRIAL SECTOR:	Metal, Plastic Fabricating and Finishing	SIC CODE: 325
RECEIVING WATERBODY:	DIRECT: Avon River INDIRECT:	

DESCRIPTION OF ACTIVITY: Manufacture of automotive radiators and heater cores

EFFLUENT CHARACTERISTICS: Contains dissolved metals including copper, zinc and nickel

EFFLUENT TREATMENT:

DISCHARGE TYPE: Batch

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: 'Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)'

EXCEEDANCES: Yes. Copper, pH and zinc

REMEDIAL ACTIONS: Ministry staff are reviewing discharge criteria for this industry and will be meeting with the company to discuss a need for improved operation and/or improved treatment facilities.

COMMENTS:

08/02/89

000185-00-0(7) BLACKSTONE INDUSTRIAL PRODUCTS LTD STRATFORD

CONTROL POINT: 0100 DATA FOR 1988

REPORT DATE: 08 MAY 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	975	633	793	808	1078	1017	970	1008	1142	1153	1153	982	976	
M3 /DAY (FTFLOW)	GUIDELINE														
CHROMIUM UNF.TOT.	ACTUAL	0.06	0.03	0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.019	
KG /DAY (CRUT)	GUIDELINE	0.975	0.633	0.793	0.808	1.08	1.02	0.97	1.01	1.14	1.15	1.15	0.982	0.976	0
COPPER UNF.TOT.	ACTUAL	0.53	0.14	0.17	0.18	0.42	0.69	0.35	0.68	1.35	0.74	0.47	0.3	0.502	
KG /DAY (CUUT)	GUIDELINE	0.975	0.633	0.793	0.808	1.08	1.02	0.97	1.01	1.14	1.15	1.15	0.982	0.976	1
LEAD UNF.TOT.	ACTUAL	0.94	0.11	0.13	0.09	0.41	0.28	0.19	0.22	0.48	0.02	0.23	0.14	0.27	
KG /DAY (PBUT)	REQUIREMENT	0.975	0.633	0.793	0.808	1.08	1.02	0.97	1.01	1.14	1.15	1.15	0.982	0.976	0
PH	ACTUAL						8.4	8.4	8.75	9.1	9.2			8.77	3
(PH)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL	4.07	0.25	3.02	2.22	7.06	0.28	6.8	3.73	11.51	6.35	5.1	1.56	4.33	
KG /DAY (RSP)	GUIDELINE	14.6	9.5	11.9	12.1	16.2	15.3	14.6	15.1	17.1	17.3	17.3	14.7	14.6	0
ZINC UNF.TOT.	ACTUAL	0.53	0.41	0.83	0.94	1.5	2.22	0.89	0.9	3.25	1.9	1.51	1.18	1.24	
KG /DAY (ZNUT)	GUIDELINE	0.975	0.633	0.793	0.808	1.08	1.02	0.97	1.01	1.14	1.15	1.15	0.982	0.976	8

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 8.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 65, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME & PLANT LOCATION: Boise Cascade Canada Ltd, Fort Frances
IMIS NO.: 0000870105

MOE REGION: Northwest
DISTRICT: Kenora

INDUSTRIAL SECTOR: Pulp and Paper Mill
SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Rainy R
INDIRECT: Winnipeg River

DESCRIPTION OF ACTIVITY: Mainly softwood (black spruce, jack pine and balsam fir) logs and chips are converted into bleached kraft pulp and groundwood paper specialties. Crude tall oil is also produced.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood, paper) and trace amounts of organics including chlorinated compounds

EFFLUENT TREATMENT: Groundwood wet room effluent is treated by screens and clarifier to remove solids. Paper machine effluents are treated by disc filter Saveall for fibre recovery and a clarifier for solids removal. The total mill effluent (kraft plus paper clarifier) is then treated through a settling basin for further solids removal, followed by an aerated lagoon for the biological removal of oxygen demanding substances

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-012-82-869 issued July, 1986, superceding No. 4-012-82-858, established limits for TSS and BOD5. Suspended solids (RSP) requirement does not include assumed biological solids. BOD_5 (15,000 kg/day in winter and 13,000 kg/day in summer) and suspended Solids (7,500 kg/day) limits are 30 day running averages.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: The Ministry of the Environment conducted 6 trout bioassays at two contract laboratories in 1988. The results indicated that the percentage effluent required to kill 50% of the fish by the end of four days exposure ranged from 37.6% to 100%. Data reported from the company on seven bioassays for the same period (1988) ranged from 29% to 71%.

07/31/89

000087-01-0(5)   BOISE CASCADE CANADA LTD. FORT FRANCES   FORT FRANCES   REPORT DATE: 15 MAY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	69200	72400	69300	69400	75400	78500	82400	82830	73270	75840	69540	67940	73835	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	8800	10700	9500	8800	9400	8100	8300	9560	9960	10600	10700	11500	9660	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
PHOSPHOR UNF.TOT.	ACTUAL		0											0	
KG /DAY (PPUT)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL	3800	4800	3500	3200	3800	3770	2700	4100	5860	5850	4700	4500	4215	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Boise Cascade Canada Ltd
& PLANT LOCATION: Kenora

IMIS NO.: 0000870006

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Winnipeg R
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood (jack pine, black spruce) logs are made into newsprint through sulphite and stone groundwood pulping.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, paper, wood) and a variety of organic compounds.

EFFLUENT TREATMENT: A large clarifier removes solids from the paper machine room and sulphite high-solids wastewaters. Two large screens remove solids from low-solids wastewaters at the paper machines, sulphite blow pit washings and stone groundwood bearing water.

DISCHARGE TYPE: Continuous through a diffuser

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-096-84-877, issued in 1987, restricts BOD5 loadings to less than 35,000 kg/day and suspended solids (RSP) loadings to less than 4,500 kg/day, both based on 30 day running averages. No. 4-0048-89-006, issued in May 1989 continues limits outlined above after construction of a new 450 TPD thermo-mechanical pulp mill in 1990.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: In 1988, six trout bioassays indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 2.6% to 13.5%.

07/31/89

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000087-00-0(6)    BOISE CASCADE CANADA LTD. KENORA                 KENORA                                                            REPORT DATE: 15 MAY 89
CONTROL POINT: 0100 DATA FOR 1988                                                                                                          ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL          44040   44000   43490   45130   49200   56400   58200   57960   50850   48520   44530   42680   48750
M3 /DAY (FTFLOW)  REQUIREMENT

BOD 5 DAY             ACTUAL          23200   27100   26800   27000   26000   23500   24500   24930   24290   25800   24650   24900   25223
KG /DAY (BOD5 )   REQUIREMENT       S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C

RESIDUE PARTIC.       ACTUAL           3800    3470    3590    3420    3320    3600    3500    3210    3780    3290    3470    3580    3503
KG /DAY (RSP )    REQUIREMENT       S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS        -
**********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF   0, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: BTL Specialty Resins.
(previously reported as Bakelite Thermosets Ltd.)
Belleville

IMIS NO.: 0001860006

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Resins

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Bay of Quinte
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Formaldehyde and hexamethylene tetramine produced on site are used to make phenol and formaldehyde resins.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics such as phenols.

EFFLUENT TREATMENT: None

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Phenols - 20 ug/L from 'Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)'.

EXCEEDANCES: Yes. East Ditch 3 of 12 months or 25%; West Ditch 6 of 12 months or 50%.

REMEDIAL ACTIONS:

COMMENTS: Discharge consists of cooling water and surface runnoff. Environmental Protection Act Section 126 Provincial Officer's Report being prepared during 1988 and early 1989.

07/15/89

000186-00-0(6) BAKELITE THERMOSETS LTD. BELLEVILLE REPORT DATE: 08 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9201	9766	9488.8	10032.6	10973.5	10756	8557.3	11246	11295	10291	8265	6974	9737	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.264	0.104	0.181	0.207	0.066	0.108	0.032	0.051	0.052	0.057	0.04	0.342	0.125	
KG /DAY (PHNOL)	GUIDELINE	0.184	0.195	0.19	0.201	0.219	0.215	0.171	0.225	0.226	0.206	0.165	0.139	0.195	3

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1988.

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2263	812	805.4	658.8	610.2	1093.5	2803.5	2251	5711	5201	963.9	2481	2154.5	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.106	0.046	0.022	0.023	0.012	0.033	0.013	0.012	0.032	0.082	0.011	0.055	0.037	
KG/DAY (PHNOL)	GUIDELINE	0.045	0.016	0.016	0.017	0.012	0.022	0.056	0.045	0.114	0.104	0.019	0.05	0.043	6

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: CAMECO
& PLANT LOCATION: (previously reported as Eldorado Resources Ltd.)
Blind River

IMIS NO.: 0000820308

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Mississagi R. mouth
INDIRECT: North Channel (Lake Huron)

DESCRIPTION OF ACTIVITY: Uranium refining using concentrated nitric acid solvent , extraction and evaporation/decomposition of the nitrate to the oxide by the addition of heat.

EFFLUENT CHARACTERISTICS: Effluent contains, nitrates, uranium and phosphorus.

EFFLUENT TREATMENT: Holding ponds.

DISCHARGE TYPE: Batch

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Under AECB licence requirements.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

08/01/89

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000082-03-0(8)     CAMECO                              FUEL SERVICES          BLIND RIVER                                                                  REPORT DATE: 04 JULY
CONTROL POINT: 0100 DATA FOR 1988                                                                                                                        ANNUAL     TOTAL
FLOW/CONCENTRATION PARAMETERS          JAN       FEB       MAR       APR       MAY       JUN       JUL       AUG       SEP       OCT       NOV       DEC  AVERAGE EXCEEDANCES
------------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                    ACTUAL      621.57   716.713   621.141       616   476.142   556.713       366   457.142   450.713    542.57   646.141   484.856      546
M3 /DAY (FTFLOW)     GUIDELINE

NO3-N UNF.REAC          ACTUAL          61        75        45        41        36        31        25        22        20        22        27        50     37.9
MG/L (NNO3UR)      REQUIREMENT        1000      1000      1000      1000      1000      1000      1000      1000      1000      1000      1000      1000     1000          0

NO3-N UNF.REAC          ACTUAL                              45                                                                                                 45
MG/L AS N (NNO3UR)REQUIREMENT                                -                                                                                                  0          0

PH                      ACTUAL         7.4       7.6      7.75       7.7       8.1       7.9       8.7       7.4       8.1       7.9       7.6         8     7.85
(PH )              REQUIREMENT                                                                                                                                             0

URANIUM UNF.TOT.        ACTUAL        0.09      0.06      0.08      0.08      0.04      0.03      0.17      0.11      0.05      0.07      0.09      0.07       78
MG/L (UUUT )         GUIDELINE          20        20        20        20        20        20        20        20        20        20        20        20       20          0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS  5.50 -  9.50
************************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  30, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: CAMECO
& PLANT LOCATION: (previously reported as Eldorado Resources Ltd.)
Port Granby

IMIS NO.: 0000820209

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Leachate is collected and chemically treated.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Leachate from site collected in two ponds. Leachate chemically treated for arsenic and radium removal. Precipitated arsenic and radium are settled out in ponds, and treated effluent is discharged to Lake Ontario together with offsite groundwater intercepted at periphery of site.

DISCHARGE TYPE: Batch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Effluent quality limits are set in AECB operating licence. Only Radium and Arsenic concentrations in Licence Limits

EXCEEDANCES: Yes. 3 pH exceedances and 3 arsenic exceedances

REMEDIAL ACTIONS:

COMMENTS: Arsenic concentration limits under review by AECB/MOE. Decommissioning of the site is indefinite. Arsenic concentration limits under review by AECB and MOE.

07/22/89

000082-02-0(9) CAMECO (PORT GRANBY) PORT HOPE REPORT DATE: 20 OCT 89
CONTROL POINT: 0200 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	224.65	171.38	174.2	210	181.45	171.33	306.67	110.97	140.33	199.03	202	155	187	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.24	0.21	0.25	0.36	0.1	0.27	0.01	0.22	0.46	0.71	0.56	0.74	0.344	
MG/L AS AS	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3
PH	ACTUAL	8.69	8.25	7.72	9.29	9.69	9.28	9.01	8.83	9.81	9.71	8.92	8.92	9.01	
(PH)	GUIDELINES														3
RADIUM 226	ACTUAL	0.083	0.059	0.088	0.096	0.055	0.056	0.055	0.055	0.055	0.059	0.067	0.065	0.066	
BQ/L AS RA	GUIDELINE	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0
URANIUM UNF.TOT.	ACTUAL	0.91	0.76	0.61	0.81	0.65	0.8	0.46	0.51	0.57	0.73	0.55	0.51	0.656	
MG/L (UUUT)	GUIDELINE	3	3	3	3	3	3	3	3	3	3	3	3	3	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: CAMECO
& PLANT LOCATION: (previously reported as Eldorado Resources Ltd.)
Port Hope

IMIS NO.: 0000820001

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Uranium oxide (UO2) is converted into (UF6).

EFFLUENT CHARACTERISTICS: Cooling water may contain fluorides, uranium, ammonia plus nitrate.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Two discharge pipes at surface- continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Atomic Energy Canada Limited Licence Limits. (Federal)

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: No flow measurements available - estimates only. Reported is the concentration of specific parameters from control point 02.

07/22/89

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000082-00-0(1)     CAMECO                                     PORT HOPE                                                            REPORT DATE: 20 OCT 89
CONTROL POINT: 0200 DATA FOR 1988                                                                                                      ANNUAL     TOTAL
FLOW/CONCENTRATION PARAMETERS           JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------
FLUORIDE UNF.TOT.     ACTUAL            0.39    0.3     0.29    0.26    0.33    0.42    0.25    0.28    0.22    0.35    0.29    0.23   0.301
MG/L AS F (FFIDUT) GUIDELINE             1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5     1.5         0

NH3-N TOTAL           ACTUAL            0.01    0.1     0.1     0.1     0.1     0.1     0.1     0.1     0.1     0.14    0.11    0.14    0.1
MG/L AS N (NNHTUR) GUIDELINE             0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5         0

NO2+NO3N UNF.REAC     ACTUAL            3.05    2.83    3.34    3.08    2.08    2.34    1.35    1.25    1.39    1.15    1.51    1.95    2.11
MG/L AS N (NNOTUR) GUIDELINE              25      25      25      25      25      25      25      25      25      25      25      25      25         0

URANIUM UNF.TOT.      ACTUAL            0.04    0.1     0.09    0.18    0.05    0.03    0.02    0.05    0.04    0.05    0.04    0.05   0.062
UG/L (UUUT )         GUIDELINE           0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5     0.5         0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: CAMECO
(previously reported as Eldorado Resources Ltd.)Welcome Waste Site
Welcome Waste Site

IMIS NO.: 0000820100

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Leachate is collected and chemically treated

EFFLUENT CHARACTERISTICS: Chemical precipitation

EFFLUENT TREATMENT: Chemical precipitation.

DISCHARGE TYPE: continuous submerged

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Effluent quality limits are set in AECB operating licence. Only Radium and Arsenic concentrations in Licence Limits - No loading criteria

EXCEEDANCES: One arsenic exceedance.

REMEDIAL ACTIONS:

COMMENTS: Arsenic concentration limits under review by AECB/MOE. Decommissioning of the site is indefinite. Collection ponds re-constructed in 1986 to improve arsenic treatment.

07/22/89

000082-01-0(0)   CAMECO (WELCOME)   PORT HOPE   REPORT DATE: 18 SEP 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	285.1	384.76	331.42	428.63	274.03	129.8	107.07	71.84	88.73	304.74	270	253	244	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.01	0.01	0.02	0.02	0.01	0.03	0.09	0.29	0.12	0.2	0.01	0.01	0.068	
MG/L AS AS	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
PH	ACTUAL	6.98	6.89	6.91	7.41	7.51	7.47	7.69	7.84	7.83	7.72	7.59	7.78	7.47	
(PH)	REQUIREMENT														0
RADIUM 226 FIL.	ACTUAL	0.055	0.055	0.06	0.055	0.055	0.055	0.055	0.29	0.055	0.06	0.055	0.068	0.077	
BQ/L (RA226F)	GUIDELINE	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Campbell Soup Co. Ltd.
& PLANT LOCATION: P.O. Box St. Marys
IMIS NO.: 0000970004

MOE REGION: Southwest
DISTRICT: London

INDUSTRIAL SECTOR: Food and beverage
SIC CODE: 101

RECEIVING WATERBODY: DIRECT: 248 km from Thames R. North Branch
INDIRECT:

DESCRIPTION OF ACTIVITY: Poultry and small game dressing

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Diffused outfall to river sludge irrigation on company land

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Yes.

EXCEEDANCES: Yes. Company is in non-compliance for BOD5 and suspended solids (RSP).

REMEDIAL ACTIONS: The sewage treatment plant was upgraded in late 1988. Because of continuing concern over effluent quality, a consultant has been retained to review and assist in optomizing operating procedures, and to consider a possible need for further improvements in the treatment process.

COMMENTS:

08/02/89

000097-00-0(4)   CAMPBELL SOUP COMPANY LTD   PO BOX 1180 ST MARYS   REPORT DATE: 08 MAY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	794	851	722	695	590	5607		575	542	547	494	476	1081	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	115	185	152	136	133	92	86	175	74	61	50	63	110	
KG /DAY (BOD5)	REQUIREMENT	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	11
PH	ACTUAL	7.5	7.4	7.4	8	6.5	7.8	7.6	7.6	7.9	7.8	7.6	7.6	7.56	0
(PH)	REQUIREMENT														
PO4 FIL.REAC	ACTUAL	1.4	1.1	1.2	1.6	1.1	1.3	1.2	1.3	0.9	0.8	0.5	0.5	1.08	
KG /DAY (PPO4FR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	121	228	291	250	173	71	90	118	41	75	59	48	130	
KG /DAY (RSP)	REQUIREMENT	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	10
RESIDUE TOTAL	ACTUAL	1477	2051	1784	2022	1486	1205	1324	1269	1420	1103	967	903	1418	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 8.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 21 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 42% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Campbell's Wellington Mushroom Farm
& PLANT LOCATION: Hallowell Twp.

IMIS NO.: 0000970400

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE:

RECEIVING WATERBODY: **DIRECT:** unamed creek.
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Growing of mushrooms.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Package mechanical treatment plant with effluent filtration followed by polishing lagoon.

DISCHARGE TYPE: Continous.

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** #4-049-72-006 dated May 15, 1972 contains no effluent quality objectives for BOD5 or suspended solids.

MOE OR FEDERAL GUIDELINES: Operation objectives for BOD5 or suspended solids based on treatment (mechanical plant with chemical addition fro phosphorus removal) are BOD5 25 mg/L; suspended solids (RSP) 25 mg/L assessed on an annual average. Total phosphorus (PPUT) 1mg/L assessed on a monthly average.

EXCEEDANCES: Yes. PPUT for 3 of 3 months reported. RSP on an annual average for 3 months of available data.

REMEDIAL ACTIONS: Addition of chemical (alum) for phosphorus removal reinitiated January 1989. Effluent quality compliance achievable based on initial results.

COMMENTS: Initial IMIS report for this discharge.

07/15/89

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000097-04-0(0)    CAMPBELL'S WELLINGTON MUSHROOM FARM              WELLINGTON                                                              REPORT DATE: 08 AUG 89
CONTROL POINT: 0100 DATA FOR 1988                                                                                                                   ANNUAL     TOTAL
FLOW/CONCENTRATION PARAMETERS              JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------
BOD 5 DAY           ACTUAL                                                                                            8      8.5     8.66     8.39
MG/L AS O (BOD5 ) REQUIREMENT                                                                                        25       25       25       25        0

PHOSPHOR UNF.TOT.   ACTUAL                                                                                          3.2     4.05      3.7     3.85
MG/L AS P (PPUT ) REQUIREMENT                                                                                         1        1        1        1        3

RESIDUE PARTIC.     ACTUAL                                                                                           22     26.3     33.6     27.3
MG/L (RSP )       REQUIREMENT                                                                                        25       25       25       25        2

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
***********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   5 OUT OF   9, FOR A TOTAL COMPLIANCE RECORD OF  44% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Canadian Canners Ltd.
& PLANT LOCATION: St. Davids

IMIS NO.: 0001930007

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 102

RECEIVING WATERBODY:
DIRECT: Four Mile Creek
INDIRECT: 12 km to Lake Ontario

DESCRIPTION OF ACTIVITY:

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Facultative lagoon.

DISCHARGE TYPE: batch discharge usually in fall of year

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Waste Discharges In Ontario.

EXCEEDANCES: None. Company has met its guideline objectives.

REMEDIAL ACTIONS:

COMMENTS:

06/22/89

000193-00-0(7) CANADIAN CANNERS LIMITED ST DAVIDS REPORT DATE: 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	0	0	0	1915	990	0	0	0	0	0	0	0	242	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL				11.5	5.9								8.7	
KG /DAY (BOD5)	GUIDELINE				28.7	14.9								21.8	0
PHOSPHOR UNF.TOT.	ACTUAL				0.57	0.3								0.435	
KG /DAY (PPUT)	GUIDELINE				1.92	0.99								1.45	0
RESIDUE PARTIC.	ACTUAL				1	24.75								29.4	
KG /DAY (RSP)	GUIDELINE				47.9	24.75								36.3	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 6, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Canadian Oxy-Durez
Dunlop
Fort Erie

IMIS NO.: 0001590009

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures phenol-formaldehyde type resins.

EFFLUENT CHARACTERISTICS: Recycles waste water; cooling water discharge only.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Waste Discharges In Ontario.

EXCEEDANCES: Company has exceeded the phenol discharge guideline.

REMEDIAL ACTIONS: Company completed voluntary program involving storm water treatment and process modification to achieve compliance with phenol discharge guideline in March, 1989. Company now in compliance.

COMMENTS: No sample results submitted for total suspended solids for 10 months of 1988.

07/19/89

000159-00-0(9) CANADIAN OXY-DUREZ FORT ERIE REPORT DATE: 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	162	47.7	166.5	210.3	237	322.8	122.7	169.4	304.7	434	326.6	264.4	231	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	0	0.0668	0.636	0.6	0.366	0.32	0.63	0.98	0.85	2.76	1.48	0.2115	0.742	
KG /DAY (BOD5)	GUIDELINE	2.43	0.716	2.5	3.15	3.56	4.84	1.84	2.54	4.57	6.51	4.9	3.97	3.46	0
PHENOLS UNF-REAC	ACTUAL	0.005	0.00088	0.0035	0.004	0.004	0.0107	0.003	0.0035	0.009	0.0381	0.009	0.178	0.022	
KG /DAY (PHNOL)	GUIDELINE	0.003	0.001	0.003	0.004	0.005	0.006	0.002	0.003	0.006	0.009	0.007	0.005	0.005	9
PHOSPHOR UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (PPUT)	GUIDELINE	0.162	0.048	0.167	0.21	0.237	0.323	0.123	0.169	0.305	0.434	0.327	0.264	0.231	0
RESIDUE PARTIC.	ACTUAL						0.0006						0	0	
KG /DAY (RSP)	GUIDELINE						4.84						3.97	4.4	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 38, FOR A TOTAL COMPLIANCE RECORD OF 76% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Canadian Pacific Forest Products Limited, Dryden	IMIS NO.: 0000840108
MOE REGION:	Northwest	DISTRICT: Kenora
INDUSTRIAL SECTOR:	Pulp and Paper Mill	SIC CODE: 271
RECEIVING WATERBODY:	DIRECT: Wabigoon River INDIRECT: Winnipeg River	

DESCRIPTION OF ACTIVITY: Kraft bleached pulp and uncoated fine papers are made from softwoods (jack pine, black spruce).

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper fines etc.) and chemicals from pulping and bleaching liquors (chlorinated compounds).

EFFLUENT TREATMENT: No solids from dry woodroom (debarking). Use of a continuous digester and enclosed diffusion washers results in few spills with much less solids and dissolved organics in wastewaters from the processes. Foul condensates are steam stripped to remove odourous organic compounds. Total effluent is treated by a clarifier prior to biological treatment (aeration lagoon), stabilization basin and a foam barrier.

DISCHARGE TYPE: Continuous through a submerged diffuser.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-041-76-776,issued in 1977, restricts TSS loadings to less than 5600 kg/day; No. 4-008-81-8711, issued in July, 1987 and No.4-0168-87-886, issued in May, 1988 continue this limit.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:
The Ministry of the Environment conducted 6 trout bioassays at two contract laboratories in 1988. Statistically, the percentage effluent required to kill 50% of the test fish by the end of four days exposure ranged from 49% to >100%. Data reported from the company on 11 bioassays for the same period ranged from 50% to >100%.

07/31/89

000084-01-0(8) CANADIAN PACIFIC FOREST PRODUCTS LTD. DRYDEN MILL DRYDEN

REPORT DATE: 15 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	74000	79000	79000	85000	80000	108001	107001	94450	68790	77940	72750	63260	82433	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	2100	2100	1600	1700	1800	2000	1500	1790	1100	2020	2500	1900	1843	
KG /DAY (BOD5)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	3400	3900	3100	2600	3500	5200	4200	1930	2870	3740	4000	3600	3503	
KG /DAY (RSP)	REQUIREMENT	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Canadian Pacific Forest Products Limited, Thunder Bay

IMIS NO.: 0000840009

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: 9 km to Lake Superior (Thunder Bay)

DESCRIPTION OF ACTIVITY: Newsprint and kraft pulp are made from logs and chips, mainly softwoods (Black spruce, Jack pine Balsam fir etc.) and some Poplar, by the kraft, stone groundwood and sulphite pulping processes. The kraft pulp is bleached. Crude tall oil is recovered and sold.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre etc.) and chemicals from pulping and bleaching liquors (chlorinated compounds).

EFFLUENT TREATMENT: Several clarifiers in the newsmill, the kraft mills and neutral fiber kraft (clarification with pH adjustment). Bisulphite liquor cross recovery. Modern closed cycle process in "B" kraft Mill. Foul condensates are treated in-mill by steam stripping.

DISCHARGE TYPE: Continuous through a submerged diffuser with a separate clean cooling water discharge.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Suspended solids (RSP) 14 tonnes per day (Dec. 31, 1983

MOE OR FEDERAL GUIDELINES: MOE phosphorus guideline of 1 mg/L. Federal BOD5 limit of 77.7 tonnes per day.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: It is anticipated that a new Control Order will be issued in 1989.

Six trout bioassays in 1988 indicated the Clean and Combined effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 33.1% to 73.7%.

07/31/89

000084-00-0(9)   CANADIAN PACIFIC FOREST PRODUCTS LTD. THUNDER BAY   THUNDER BAY   REPORT DATE: 26 JUNE 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	190000	210000	210000	200000	250000	220000	250000	240000	200000	200000	190000	190000	212500	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	41000	42000	45000	38000	40000	45000	39000	41000	38000	40000	41000	39000	40750	
KG /DAY (BOD5)	REQUIREMENT	77700	77700	77700	77700	77700	77700	77700	77700	77700	77700	77700	77700	77700	0
PHOSPHOR UNF.TOT.	ACTUAL	139.3	187.6	143.9	103.2	139.3	95.78	241.65	117.6	103	110.5	107.7	101.9	133	
KG /DAY (PPUT)	GUIDELINE	190	210	210	200	250	220	250	240	200	200	190	190	212	0
RESIDUE PARTIC.	ACTUAL	11000	12000	10000	8000	10000	10000	10000	10000	10000	13000	13000	12000	10750	
KG /DAY (RSP)	REQUIREMENT	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

`**************************************************************************************************************************************`

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Canamax Ltd.
& PLANT LOCATION: Bell Creek Mine
Porcupine

IMIS NO.: 0046950002

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Smelting

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Bell Creek to Pocurpine stream.
INDIRECT:

DESCRIPTION OF ACTIVITY: Gold mining and milling (cyanidation/zinc precipitation)

EFFLUENT CHARACTERISTICS: Cyanides, copper, lead, zinc, nickel, suspended solids, pH

EFFLUENT TREATMENT: 2 stage tailings management system.

DISCHARGE TYPE: Seasonal.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL: MAY 14, 1985:

EXCEEDANCES: yes. Cummulative metal exceedances for 2 months., suspended solids for 1 month, 2 exceedances for iron and 1 exceedance for zinc.

REMEDIAL ACTIONS:

COMMENTS: The treatment system utilizes natural degradation and settling and discharge on a seasonal basis. The 1988 discharge was started early in order to prevent dam failure. This resulted in exceedances for suspended solids, iron, zinc and cumulative metals.. No exceedances were experienced during the normal discharge period (August to October).

One trout bioassay in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

08/02/89

004695-00-0(2)   BELL CREEK MINE   (CANAMAX)   PORCUPINE   REPORT DATE: 07 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL			0.072	0.11	0.338			0.034		0.1			0.131	
MG/L AS HCN	GUIDELINE			2	2	2			2		2			2	0
COPPER UNF.TOT.	ACTUAL			0.475	0.32	0.37			0.088	0.081	0.12			0.242	
MG/L AS CU	GUIDELINE			1	1	1			1	1	1			1	0
IRON UNF.TOT.	ACTUAL			2.87	1.48	0.69			0.048	0.64	0.535			1.04	
MG/L AS FE	GUIDELINE			1	1	1			1	1	1			1	2
NICKEL UNF.TOT.	ACTUAL			0.125	0.13	0.103			0.049	0.054	0.072			0.089	
MG/L AS NI	GUIDELINE			1	1	1			1	1	1			1	0
NH3-N FIL.REAC	ACTUAL			9.06	4				10	2.4				6.37	
MG/L (NNH3FR)	GUIDELINE			10	10				10	10				10	0
LEAD UNF.TOT.	ACTUAL			0.023	0.022	0.022			0.029	0.012	0.018			0.021	
MG/L AS PB	GUIDELINE			1	1	1			1	1	1			1	0
PH	ACTUAL			7.18	7.06	7.2			7.24	7.7	7.4			7.3	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL			10	21	3			2	8	2			7.67	
MG/L (RSP)	GUIDELINE			15	15	15			15	15	15			15	1
RESIDUE TOTAL	ACTUAL			330	153	153			289	327	250			250	
MG/L (RST)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL			1.29	0.83	0.372			0.035	0.11	0.101			0.456	
MG/L AS ZN	GUIDELINE			1	1	1			1	1	1			1	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 51, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: CASCO Company
& PLANT LOCATION: 800 James Street
Cardinal

IMIS NO.: 0001720002

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 106, 1083, 1089

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Wet milling & oil refining processes

EFFLUENT CHARACTERISTICS: Contains soluble organics, insoluble organics and phosphorus.

EFFLUENT TREATMENT: Aerated cell.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Requirement and Direction served on February 24, 1987 with requirements of 25 mg/L for BOD5 and Suspended Solids, and 1 mg/L for phosphorus commencing on January 01, 1989.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 15 mg/L for BOD and 15 mg/L for suspended solids (RSP- residue particulate)

EXCEEDANCES: Yes. Two monthly exceedances for BOD5 and eight for RSP.

REMEDIAL ACTIONS: Plant has extended their industrial waste facilities to bring plant into compliance in 1989.

COMMENTS: Monitoring for BOD initiated in November.

07/22/89

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000172-00-0(2)    CASCO COMPANY
                                                          CARDINAL
S U M M A R Y  FOR  EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA  DISCHARGED INTO: 02/005/      ST. LAWRENCE R.                REPORT DATE: 10 MAY 89
                    INCLUDES CONTROL POINTS:  0100 0200 0300 0301 0302
                    DATA FOR 1988
                                                                                                                                      ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS        JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC    AVERAGE EXCEEDANCES
------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL         20000   18570   19300   21510   24400   28720   30300   34600   28200   26160   26820   19300   24823
M3 /DAY (FTFLOW)   REQUIREMENT

BOD 5 DAY             ACTUAL                                                                                        1355.8   721.8   1039
KG /DAY (BOD5 )     GUIDELINE                                                                                        402.3   289.5              2

CHEM. OX DEMAND       ACTUAL          1423    1443    2479    2208    2808    5040    6805    4425    4881    4584    2299    3552    6886
KG /DAY (CODF )     GUIDELINE

PHOSPHOR UNF.TOT.     ACTUAL           9.5       4     9.9     6.2     7.9    11.3    16.2    19.9    22.5     7.7   21.41     8.9    12.1
KG /DAY (PPUT )     GUIDELINE

RESIDUE PARTIC.       ACTUAL           431     287     444     363     311     427     516     810     307     219     638     481     436
KG /DAY (RSP )      GUIDELINE          300     279     290     323     366     431     455     519     423     392     402     290     372       8

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
******************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS  10 OUT OF 14, FOR A TOTAL COMPLIANCE RECORD OF 29% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Celanese Canada Ltd.
& PLANT LOCATION: Millhaven

IMIS NO.: 0001730001

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

SIC CODE: 1811

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Textiles are made from polyester fibre produced by the reaction of ethylene glycol and terephthalic acid

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Secondary activated sludge for process and sanitary wastewater.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Water quality based total COD loading to Lake Ontario is limited to 1200 lbs (544 kg) per day as established in November 1975 Requirement and Direction.

MOE OR FEDERAL GUIDELINES: Effluent objectives for process and sanitary wastewater treatment plant set out in Certificate of Approval # 4-006-86-006 dated June 16, 1986 for BOD at 30 mg/L (loading 136 kg/day) and COD at 60 mg/L (272 kg/day).
NOTE: The wastewater treatment plant's effluent quality objectives cannot be applied directly to the discharge being reported in IMIS since the effluent is mixed with cooling water prior to discharge.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: If the C. of A quality objectives were applied to this direct discharge, exceedances would have occurred in July and August for both BOD5 and COD. Effluent quality deteriorated during these 2 months as a result of shut-down for maintenance over the summer. Plant acclimatized to influent glycol levels which are not present during the summer shut-down.

07/15/89

000173-00-0(1)   CELANESE CANADA (MILLHAVEN) INC   TWP OF ERNESTOWN
CONTROL POINT: 0100 DATA FOR 1988   REPORT DATE: 09 AUG 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6191	6486	8233	7979	10617	13868	21051	25334	19638	16232	11625	10155	13117	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	68	124	38	3	68	78	147	165	78	84	33	52	78.2	
KG /DAY (BOD5)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	136	249	77	95	135	156	295	330	157	167	66	104	164	
KG /DAY (COD)	GUIDELINE	544	544	544	544	544	544	544	544	544	544	544	544	544	0
RESIDUE PARTIC.	ACTUAL	18	52	14	24	31	35	23	62	29	38	26	41	32.8	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Champlain Industries Ltd.
& PLANT LOCATION: Tara

IMIS NO.: 0001000108

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 104

RECEIVING WATERBODY: DIRECT: Sauble R.
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Whey is made into whey based products.

EFFLUENT CHARACTERISTICS: Contains organic compounds such as proteins.

EFFLUENT TREATMENT: Secondary. Oxidation ditch clarifier sludge irrigated onto company land

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE established guidelines.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

07/29/89

000100-01-0(B)   CHAMPLAIN INDUSTRIES LIMITED   TARA   REPORT DATE: 08 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL			51		30			51	51	51	48	41	46.1	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL			0.71		0.24			0.3	0.3	0.2	0.04	0.24	0.29	
KG /DAY (BOD5)	REQUIREMENT			2.7		2.7			2.7	2.7	2.7	2.7	2.7	2.7	0
NH3-N TOTAL	ACTUAL			0.004		0.03			0.04	0.06	0.06	0.02	0.05	0.038	
KG /DAY (NNHTFR)	GUIDELINE			0.51		0.3			0.51	0.51	0.51	0.48	0.41	0.461	0
PH	ACTUAL														
(PH)	GUIDELINE			8.36		6.77			8.14	7.6	7.99	8.6	7.6	7.87	0
PO4 FIL.REAC	ACTUAL			0.158		0.09			0.15	0.39	0.19	0.24	0.17	0.198	
KG /DAY (PPO4FR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL			2.67					0.18	0.65	0.77	0.69	0.52	0.913	
KG /DAY (RSP)	REQUIREMENT			2.7					2.7	2.7	2.7	2.7	2.7	2.7	0

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: CIL Ltd.
& PLANT LOCATION: Cornwall
IMIS NO.: 0000390401

MOE REGION: Southeast
DISTRICT: Cornwall

INDUSTRIAL SECTOR: Inorganic Chemicals
SIC CODE: 3711

RECEIVING WATERBODY: **DIRECT:** St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: The mercury cell process is used to produce caustic and chlorine gas from salt

EFFLUENT CHARACTERISTICS: Contains low levels of mercury.

EFFLUENT TREATMENT: All mercury-contaminated streams are collected and subjected to an efficient physical and chemical treatment to remove mercury before discharge.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Federal Fisheries Act regulations governing the amount of mercury discharged fr mercury-cell chlor-alkali plants and Ontario guidelines for the direct discharge of effluent.

EXCEEDANCES: Yes, company exceeded monthly targets for suspended solids (RSP).

REMEDIAL ACTIONS:

COMMENTS: Company part of MISA Inorganic Chemical Sector. Legally enforceable requirements will be set.

05/02/89

000039-04-0(1)   CIL INC

CORNWALL

CONTROL POINT: 0100 DATA FOR 1988

REPORT DATE: 10 MAY 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3164	3164	2745	2809	3147	3988	4156	4145	3909	3410	2598	2403	3303	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	14.23	18.67	18.1	17.13	15.74	19.94	20.78	4.97	37.14	23.2	16.63	7.2	17.8	
KG /DAY (BOD5)	GUIDELINE	79.1	79.1	68.6	70.2	78.7	99.7	104	104	97.8	85.3	64.95	60.1	82.6	0
CHEM. OX DEMAND	ACTUAL	117.07	81.6	68.9	46.63	45.32	80.16	102.65	49.74	122.4	67.2	103.9	50.46	78	
KG /DAY (COD)	GUIDELINE														
MERCURY UNF.TOT.	ACTUAL	0.046	0.0444	0.0354	0.0423	0.0515	0.0594	0.0304	0.0325	0.0803	0.0246	0.0196	0.0209	0.041	
KG /DAY (HGUT)	GUIDELINE	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0
PHOSPHOR UNF.TOT.	ACTUAL		0.23	0.63	0.51	0.19	0.8	0.58	0.29	0.938	0.72	0.624	0.769	0.571	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	263.88	130.4	312.9	117.1	124.3	209	195.3	149.2	325.6	105.7	72.74	103.3	176	
KG /DAY (RSP)	GUIDELINE	79.1	79.1	68.6	70.2	78.7	99.7	104	104	97.8	85.3	64.95	60.1	82.6	12

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 67% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: CIL Ltd., Lambton Works
& PLANT LOCATION: Courtright

IMIS NO.: 0000390203

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3721

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Anhydrous ammonia and nitric acid produced on site are used to produce ammonium nitrate, granular, prilled and sulphur coated urea.

EFFLUENT CHARACTERISTICS: Contains dissolved inorganic compounds such as phosphorus, ammonia and fluoride and nitrates.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous at shore

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None.

REMEDIAL ACTIONS: None required.

COMMENTS:

07/29/89

000039-02-0(3) CANADIAN INDUSTRIES LTD INC AGRICULTURAL CHEMICALS COURTRIGHT

REPORT DATE: 20 OCT 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	347263	240943	246076	263674	263674	335652	393969	430852	172752	272311	350049	350049.3	305605	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7.5	7.6	7.4	7.5	7.7	7.9	7.8	7.7	7.5	7.5	7.6	7.6	
(PH)	GUIDELINE														0
FLUORIDE UNF.TOT.	ACTUAL	34.7	24.1	24.6	26.4	26.4	33.6	39.4	43.1	17.9	28.1	35	35	30.7	
KG /DAY (FFIDUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	343.9	360.4	473.1	286.5	282.1	171.4	242.7	259.9	237.8	297.7	284.7	361.3	300	
KG /DAY (NNHTFR)	GUIDELINE	3403	2361	2411	2584	2584	3289	3860	4222	1693	2668	3430	3500	3000	0
NO2+NO3N FIL.REAC	ACTUAL	229.6	99.4	107.2	102.8	87	67.1	154.4	97.3	162.2	187.9	369.4	176.2	153	
KG /DAY (NNOTFR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	17.8	23.1	12.5	14.2	13.2	16.8	19.7	21.5	8.6	13.6	18.6	17.5	16.4	
KG /DAY (PPUT)	GUIDELINE	347	241	246	264	264	336	394	431	173	272	350	350	306	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Cornwall Chemicals Limited
& PLANT LOCATION: Cornwall

IMIS NO.: 0033050006

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3712

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures carbon tetrachloride and carbon disulphide.

EFFLUENT CHARACTERISTICS: Contains small amounts of carbon tetrachloride and chloroform.

EFFLUENT TREATMENT: Primary. pH adjustment and settling.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Yes. Exceeded all the target loads set for BOD and three of the twelve monthly targets set for suspended solids (RSP).

REMEDIAL ACTIONS:

COMMENTS: Company is part of MISA Organic Chemical Sector. Legally enforceable requirements for effluent will be set.

07/15/89

003305-00-0(6)   CORNWALL CHEMICALS LIMITED   CORNWALL   REPORT DATE: 08 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	632	632	670	596	612	744	602	600	452	1077	635	835	674	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	119.3	121.7	150.8	88.39	85.07	196.79	138.82	76.32	54.1	80.2	137.16	109	113	
KG /DAY (BOD5)	GUIDELINE	15.8	15.8	16.8	14.9	15.3	18.6	15.1	15	11.3	26.9	15.9	20.9	16.8	12
CHEM. OX DEMAND	ACTUAL	113.8	125	126	67.94	117.5	175.1	115.5	63.24	51.62	102.3	97.16	116.9	106	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL		0.02	0.08	0.191	0.073	0.21	0.072	0.084	0.068	0.32	0.095	0.18	0.127	
KG /DAY (PPUT)	GUIDELINE		0.632	0.67	0.596	0.612	0.744	0.602	0.6	0.452	1.08	0.635	0.835	0.678	0
RESIDUE FILTERED	ACTUAL	2240.4	2355	2202	1550	2237	2562	1543	975.6	838.5	1181	1160.1	1386.1	1686	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	5.88	2.15	11.26	36.42	16.22	6.03	6.14	6.42	4.07	6.46	4.45	72.65	14.8	
KG /DAY (RSP)	GUIDELINE	15.8	15.8	16.8	14.9	15.3	18.6	15.1	15	11.3	26.9	15.9	20.9	16.8	3

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 15 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 57% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Courtaulds Fibre Canada and Courtaulds Films (previously reported as Courtaulds Canada Ltd and BCL Canada Ltd.) Cornwall
IMIS NO.: 0001900000
MOE REGION: Southeast
DISTRICT: Cornwall
INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres
SIC CODE: 1829, 1631
RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: At Courtaulds Fibres, dissolving sulphite pulp is reacted to form rayon. At Courtauld Films, viscose supplied by Courtaulds Fibres is made into cellulose film.

EFFLUENT CHARACTERISTICS: Contains waste acids, zinc and alkalis used in the process.

EFFLUENT TREATMENT: No external effluent treatment.

DISCHARGE TYPE: Continuous through diffusers

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Guidelines are based on Courtaulds Fibres' expired Control Order and Courtaulds Films' existing Control Order.

EXCEEDANCES: Yes. All BOD5 targets set for these companies effluent discharge were exceeded. Four of the suspended solids (RSP) targets were also exceeded.

REMEDIAL ACTIONS:

COMMENTS: Both companies are part of the Organic Chemical Sector. Legally enforceable requirements for the effluent discharges will be set.

In 1988, three sampling locations were tested for toxicity to rainbow trout.One trout bioassay indicated the Acid Sewer effluent to have been acutely lethal to fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 0.5%. One trout bioassay indicated the Viscose Sewer effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 14.1%. One trout bioassay indicated the Sulphide Sewer effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 80.6%.

10/16/89

000190-00-0(0) COURTAULDS FIBRE CANADA AND COURTAULDS FILMS CORNWALL REPORT DATE: 18 OCT 89
SUMMARY FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/005/ ST. LAWRENCE R.
INCLUDES CONTROL POINTS: 0100 0200 0300 0400
DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10759	10839	10399	10996	10618	11781	11737	13062	12290	11248	11837	10854	11368	
M3 /DAY (FTFLOW)	GUIDELINE														
ACIDITY TOTAL	ACTUAL	13600	10900	10390	11000	9700	9000	9900	11300	12500	8900	10300	9000	10541	
KG /DAY (ACDT)	GUIDELINE	14650	14650	14650	14650	14650	14650	14650	14650	14650	14650	14650	14650	14650	0
BOD 5 DAY	ACTUAL	2554	2770	3591	2538	3107	3562	2328	2258	2458	2465	2192	2377	2683	
KG /DAY (BOD5)	GUIDELINE	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	12
CHEM. OX DEMAND	ACTUAL	4857	4595	4311	4378	5272	7162	5382	4867	5121	4376	5229	6647	5183	
KG /DAY (COD)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	889	755	649	638	2394	2201	1911	906	847	1536	1224	1220	1264	
KG /DAY (RSP)	GUIDELINE	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	4
ZINC UNF.TOT.	ACTUAL	356	314	256	343	356	304	343	366	407	378	364	272	338	
KG /DAY (ZNUT)	GUIDELINE	728	728	728	728	728	728	728	728	728	728	728	728	728	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 16 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 67% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Cyanamid Canada Inc.
& PLANT LOCATION: Niagara Falls

IMIS NO.: 0001550003

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3782

RECEIVING WATERBODY: DIRECT: Niagara River and Queenston-Chippawa Hydro Power Canal to Niagara River
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Calcium carbide and calcium cyanide are produced by electric arc furnaces.

EFFLUENT CHARACTERISTICS: Cooling water from furnace operation.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through two outfalls

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Waste Discharges In Ontario.

EXCEEDANCES: One exceedance of total suspended solids due to storm runoff conditions..

REMEDIAL ACTIONS:

COMMENTS:

In 1988, two trout bioassays indicated the Hydro Canal discharge to have been non-acutely lethal to the test fish. One trout bioassay indicated the Cooling Water Pond discharge to have been non-acutely lethal to the test fish.

07/19/89

000155-00-0(3) CYANAMID CANADA INC NIAGARA FALLS REPORT DATE: 05 AUG 89

SUMMARY FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	32400	32400	32400	32400	32400	32400	32400	32400	32400	32400	32400	32400	32400	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.45	8.35	8.2	8	8.36	8.3	8.55	8.55	8.8	8.3	8.45	8.2	8.38	
(PH)	GUIDELINE														0
CYANIDE AVAIL	ACTUAL	0	0.52	0.194	0.119	0.129	0	0	0.054	0	0	0	0.324	0.112	
KG /DAY (CCNAUR)	GUIDELINE	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	0
PHOSPHOR UNF.TOT.	ACTUAL	4.3	0	0	0	0	19.44	0	7.6	0.648	2.8	1.25	9.72	3.81	
KG /DAY (PPUT)	GUIDELINE	21.6	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	31.5	0
RESIDUE PARTIC.	ACTUAL	142.6	361.8	308.9	88.5	399.6	383.4	0	200.879	38.9	414.739	0	1440.69	315	
KG /DAY (RSP)	GUIDELINE	324	486	486	486	486	486	486	486	486	486	486	486	472	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Cyanamid Canada Inc., Welland Plant Niagara Falls	IMIS NO.: 0001550102
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	Inorganic Chemical, Synthetic Fibres	SIC CODE: 3711
RECEIVING WATERBODY:	DIRECT: Thompson's Creek to Welland River to Niagara River INDIRECT:	

DESCRIPTION OF ACTIVITIES: Inorganic nitrogen and phosphorus products (amonia, dicyandiamid)

EFFLUENT CHARACTERISTICS: Process and cooling waters.

EFFLUENT TREATMENT: Wastewater discharges to product recovery system, settling lagoons and then to open outfall.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Loadings derived from effluent concentrations specified in Control Order.

CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Company issued a Certificate of Approval requiring non-lethal effluent at all time.

EXCEEDANCES: Company in complaince with listed parameters.

REMEDIAL ACTIONS:

COMMENTS:

Of 17 trout bioassays of the final effluent conducted in 1988, two tests proved to be lethal to fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 7.0% and 32.6%.

06/23/89

000155-01-0(2) CYANAMID CANADA INC
CONTROL POINT: 0200 DATA FOR 1988
NIAGARA FALLS
REPORT DATE: 05 AUG 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	21683	33637	31906	22599	14066	21060	21273	28042	16840	19770	22620	23472	23081	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.4	6.7	6.6	6.4	7	6.5	7	6.6	6.8	7.1	6.6	6.6	6.69	
(PH)	REQUIREMENT														
BOD 5 DAY	ACTUAL	0	67.27	0	22.6	0	42	43	0	0	0	215	0	32.5	
KG /DAY (BOD5)	REQUIREMENT	325	505	479	339	211	316	319	421	253	297	339	352	346	0
CHROMIUM UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (CRUT)	REQUIREMENT	21.7	33.6	31.9	22.6	14.1	21.1	21.3	28	16.8	19.8	22.6	23.5	23.1	0
NH3-N TOTAL	ACTUAL	215	306	287	183	79	103	177	137	125	158	174	139	156	
KG /DAY (NNHTFR)	GUIDELINE	217	336	319	226	141	211	213	280	168	198	226	235	222	0
KJELDAHL ORGANIC	ACTUAL	21.6	33.6	0	22.6	0	0	0		0	0	0	0	7.07	
KG /DAY (NNKUR)	GUIDELINE														
NO3-N FIL.REAC	ACTUAL	182.1	319.6	364	165	59	57	104	90	74	177	154	82	152	
KG /DAY (NNO3FR)	GUIDELINE														
K'DAHL N TOTAL	ACTUAL	72.9	831	906	631	321	621	502	569	402	562	726	727	573	
KG /DAY (NNTKFR)	GUIDELINE														
NITROGEN UNF.TOT.	ACTUAL	910.7	1150	1270	795	380	678	606	625	477	739	879.4	808.3	777	
KG /DAY (NNUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	19.5	20.1	16	20	8	17	11	14	10	19	22.6	17	16.2	
KG /DAY (PPUT)	REQUIREMENT	21.7	33.6	31.9	22.6	14.1	21.1	21.3	28	16.8	19.8	22.6	23.5	23.1	0
RESIDUE PARTIC.	ACTUAL	0	360	0	0	0	0	0	0	0	52	67	41	43.3	
KG /DAY (RSP)	REQUIREMENT	325	505	479	339	211	316	319	421	253	297	339	352	346	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 58, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Denison Mines Ltd.
& PLANT LOCATION: Elliot Lake

IMIS NO.: 0001680008

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Stollery Lake to Serpent River
INDIRECT: 70 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts, ammonia compounds and radioactive material.

EFFLUENT TREATMENT: Lagoon - Two stage treatment consisting of lime addition to the tailings to effect pH control and metals precipitation in tailings area, followed by barium chloride for Ra_{226} precipitation and settling in a polishing pond.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000168-00-0(8)   DENISON MINES LIMITED   ELLIOT LAKE   REPORT DATE: 04 JULY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	20822.2	22291.1	30931	41126	24970	22982	22637	21946	24451.1	22378	32314	16157	25250	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL				0.82		0.46	0.45		0.49	0.45		0.32	0.498	
KG /DAY (CUUT)	GUIDELINE				S/C		S/C	S/C		S/C	S/C		S/C		
NICKEL UNF.TOT.	ACTUAL				0.82		2.3	0.45		1.96	1.34		1.29	1.36	
KG /DAY (NIUT)	GUIDELINE				S/C		S/C	S/C		S/C	S/C		S/C		
LEAD UNF.TOT.	ACTUAL				1.23		0.69	0.68		0.73	0.67		0.48	0.747	
KG /DAY (PBUT)	GUIDELINE				S/C		S/C	S/C		S/C	S/C		S/C		
PH	ACTUAL	7.2	7.2	7.7	7.7	8	8.1	8.2	7.6	7.6	7.8	7.2	7.3	7.63	
(PH)	GUIDELINE														0
RADIUM 226 FIL.	ACTUAL	1.8	2	2.5	1.9	3.5	2.4	3.5	1.6	2.4	2.4	3.5	1.89	2.44	
PCI/L AS RA	GUIDELINE	-	-												0
RADIUM 226 FIL.	ACTUAL	1.3	0.074	0.092	0.07	0.129	0.089	0.129	0.059	0.089	0.089	0.129	0.07	0.193	
BQ/L (RA226F)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
RADIUM 226	ACTUAL	42.4	51.8	78.6	49.6	0.05	68	113	35.6	38.1	53.5	45.4	20.8	49.7	
PCI/L AS RA	GUIDELINE														
RADIUM 226	ACTUAL	1.57	1.92	2.9	1.83	3.88	2.52	4.18	1.32	1.41	1.98	1.68	0.77	2.16	
BQ/L (RA226T)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	187	201	278	247	400	414	385	176	293	246	323	65	268	
KG /DAY (RSP)	GUIDELINE	312	334	464	617	375	345	340	329	367	336	485	242	379	0
ZINC UNF.TOT.	ACTUAL				0.82		0.46	0.45		0.73	0.67		0.32	0.575	
KG /DAY (ZNUT)	GUIDELINE				S/C		S/C	S/C		S/C	S/C		S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Denison Mines Ltd. (Stanrock)
& PLANT LOCATION: Elliot Lake

IMIS NO.: 0001680206

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River
INDIRECT: 60 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Mine is currently closed.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Tailings area runoff and mine water is treated with lime slurry and barium chloride and precipitation settled in treatment ponds.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Denison has improved treatment facilities to control pH exceedances.

08/02/89

000168-02-0(6) DENISON MINES LTD (STANROCK) ELLIOT LAKE REPORT DATE: 04 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2592	3542.2	6048	16589	2160	2678	1469	2592	4406	9850	13997	4925	5904	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL						0.05	0.03		0.09	0.2			0.093	
KG /DAY (CUUT)	GUIDELINE						S/C	S/C		S/C	S/C				
NICKEL UNF.TOT.	ACTUAL						0.08	0.03		0.09	0.59			0.198	
KG /DAY (NIUT)	GUIDELINE						S/C	S/C		S/C	S/C				
LEAD UNF.TOT.	ACTUAL						0.08	0.04		0.13	0.3			0.138	
KG /DAY (PBUT)	GUIDELINE						S/C	S/C		S/C	S/C				
PH	ACTUAL	8.5	8.8	8		7.1	7.1	7.4	7.8	7.6	7	7.8	8.6	7.79	
(PH)	GUIDELINE														0
RADIUM 226	ACTUAL	0.9	2.1	2	1.2	4.3	4.9	4.9	5.9	4.9	2.7	2.7	2.7	3.27	
PCI/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	2.6	3.5	24	16.6	4.3	2.7	1.5	2.6	8.8	30	84	5	15.5	
KG /DAY (RSP)	GUIDELINE	38.9	53.1	90.7	248	32.4	40.2	22	38.9	66.1	148	210	73.9	88.5	0
ZINC UNF.TOT.	ACTUAL				0.33		0.05	0.03		0.09	0.49			0.198	
KG /DAY (ZNUT)	GUIDELINE				S/C		S/C	S/C		S/C	S/C				

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Denison Mines Ltd.
(Williams Lake) (Beaver Pond Outlet)
Elliot Lake

IMIS NO.: 0001680107

MOE REGION: Northeast

DISTRICT: Sault Ste.Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Williams Lake to Beaver Pond to Serpent River
INDIRECT: 70 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Idle tailings area.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Tailings area runoff is treated with caustic and barium chloride, precipitate settled in Beaver Pond area and effluent discharges to Serpent River.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000168-01-0(7) DENISON MINES LTD (WILLIAMS LAKE) ELLIOT LAKE REPORT DATE: 04 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	190	259	1209.6	6739.2	518.4	172.8	172.8	518.4	604.8	2851.2	3974.4	345.6	1463	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL				0.13		0.0035			0.01	0.006		0.007	0.0728	
KG /DAY (CUUT)	GUIDELINE				S/C		S/C			S/C	S/C		S/C		
NICKEL UNF.TOT.	ACTUAL				0.13		0.0035			0.01	0.06		0.007	0.042	
KG /DAY (NIUT)	GUIDELINE				S/C		S/C			S/C	S/C		S/C		
LEAD UNF.TOT.	ACTUAL				0.2		0.0052				0.09		0.01	0.0763	
KG /DAY (PBUT)	GUIDELINE				S/C		S/C				S/C		S/C		
PH	ACTUAL	7	7.1	8	8	7.8	7.4	7.5	7.3	7.2	7.5	8.3	8.2	7.61	
(PH)	GUIDELINE														0
RADIUM 226 FIL.	ACTUAL	0.05	0.07		0.09	0.08	0.06	0.16	0.12	0.1		0.06	0.03	0.7	
BQ/L (RA226F)	GUIDELINE	-	-												0
RADIUM 226	ACTUAL	1.1	2.5	4.1	1.4	3.2	0.54	3.8	3.5	4.6	2.2	1.89	2.4	2.6	
PCI/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0.19	0.26	1.2	20	0.5	0.17	0.17	1	1.2	5.7	7.9	0.35	3.22	
KG /DAY (RSP)	GUIDELINE	2.85	3.89	18.1	101	7.78	2.59	2.59	7.78	9.07	42.8	59.6	5.18	21.96	0
ZINC UNF.TOT.	ACTUAL				0.13		0.0035			0.01	0.06		0.007	0.042	
KG /DAY (ZNUT)	GUIDELINE				S/C		S/C			S/C	S/C		S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Detour Lake Mine Timmins	IMIS NO.: 0028940005
MOE REGION:	Northeast	DISTRICT: Timmins
INDUSTRIAL SECTOR:	Metal Mining, Milling, Smelting	SIC CODE: 0591
RECEIVING WATERBODY:	DIRECT: Sunday Lake INDIRECT: Detour River	

DESCRIPTION OF ACTIVITY: Gold mining and milling operation using carbon-in-pulp method.

EFFLUENT CHARACTERISTICS: Contains copper and cyanide, and lesser amounts of other heavy metals.

EFFLUENT TREATMENT: Natural degradation in tailings area with decant being treated by H_2O_2 prior to polishing pond.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): The present Certificate of Approval states the maximum allowable concentrations for copper and cyanide are 1.0 mg/L and 2.0 mg/L respectively at the final discharge point. In 1987 a C. of A. was issued for treating the tailing decant with hydrogen peroxide.

EXCEEDANCES: Yes one (1) exceedance of the monthly average for copper.

REMEDIAL ACTIONS: The company experienced exceedances of discharge criteria for certain metals during the spring run-off. Hydraulic loading also exceeded treatment plant capability. An application for a Certificate of Approval has been submitted to double the size of the existing hydrogen peroxide plant. Project to be completed prior to April 1, 1990.

COMMENTS: In 1988 three bioassays were done on Detour Lake final effluent. Two of three trout bioassays indicated that the final effluent was acutely lethal to the test fish. Statistically the percentage effluent required to kill the test fish by the end of the four days exposure was 30.4% and 51% respectively. One sample was found to be non-lethal.

08/02/89

002894-00-0(5) DETOUR LAKE MINE LTD. TIMMINS REPORT DATE: 07 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL	0.018	0.029	0.074	0.045	0.096		0.02	0.025	0.019	0.026	0.034	0.012	0.036	
MG/L AS HCN	GUIDELINE	2	2	2	2	2		2	2	2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL	0.485	0.67	0.79	0.62	0.96	1.33	0.612	0.476	0.391	0.313	0.286	0.228	0.597	
MG/L AS CU	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NICKEL UNF.TOT.	ACTUAL	0.04	0.03	0.04	0.021	0.06	0.083	0.047	0.036	0.035	0.029	0.02	0.02	0.038	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
LEAD UNF.TOT.	ACTUAL							0.02	0.03	0.01	0.02	0.02	0.018	0.02	
MG/L AS PB	GUIDELINE							1	1	1	1	1	1	1	0
PH	ACTUAL	7.9	7.1	7.21	7.06	7.37	7.64	7.68	7.66	7.86	7.67	7.12	6.84	7.43	
(PH)	GUIDELINE														0
ZINC UNF.TOT.	ACTUAL	0.019	0.006	0.015	0.011	0.01	0.011	0.01	0.01	0.005	0.006	0.012	0.011	0.011	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 65, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Dickenson Mines Ltd.
(previously reported as Dickenson - Sullivan Joint Venture)
Arthur W. White Mine
Township Golden-Balmertown

IMIS NO.: 0034880004

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Balmer Creek - Chukuni River
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Primary tailings disposal area: secondary and tertiary polishing for cyanide removal: total retention of wastewaters during critical late-winter, early summer period for complete cyanide degradation.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-059-86-006, issued August 22, 1986, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc, and suspended solids.

EXCEEDANCES: Yes. Arsenic two out of twelve months.

REMEDIAL ACTIONS: Fall discharges were slightly in excess of criteria. Discharges are necessary to ensure that retention is available to prevent the release of lethal cyanide levels during fish spawning periods in early spring. Criteria exceedances are being investigated by the company.

COMMENTS: The effluent discharge point is shared with Placer-Dome Inc. Campbell Red Lake Mine, thus the loadings and comments for the two are identical. Effluent discharges occurred on 69 days of the year (19%). Monthly averages are based on the mean of the daily data for those days in the month on which the discharges occurred.
Seven trout bioassays conducted in 1988 indicated the final effluent is usually not acutley lethal to the test fish. Two samples collected during flow events had 96 hour LC50s of greater than 100%. Two of five samples collected when effluent was not being released had 96 hour LC50s of greater than 100%, while the remaining results were < 10%, 42%, and 58.6%.

07/31/89

003448-00-0(4) DICKENSON MINES LTD. BALMERTON REPORT DATE: 27 JUNE 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	0	0	0	3200	0	0	0	0	49300	49900	102501	67700	22717	
M3 /DAY (FTFLOW)	REQUIREMENT														
ARSENIC UNF.TOT.	ACTUAL				0.405					0.52	0.511	0.387	0.487	0.462	
MG/L (ASUT)	REQUIREMENT				0.5					0.5	0.5	0.5	0.5	0.5	2
CYANIDE AVAIL	ACTUAL				0.18					0.09	0.09	0.1	0.12	0.116	
MG/L (CCNAUR)	REQUIREMENT				2					2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL				0.267					0.497	0.475	0.453	0.478	0.434	
MG/L (CUUT)	REQUIREMENT				1					1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL				0.606					0.97	0.942	0.977	0.971	0.893	
MG/L (NIUT)	REQUIREMENT				1					1	1	1	1	1	0
RESIDUE PARTIC.	ACTUAL				5.5					5.3	7	5	9	6.36	
MG/L (RSP)	REQUIREMENT				15					15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL				0.128					0.157	0.172	0.17	0.172	0.16	
MG/L (ZNUT)	REQUIREMENT				1					1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Dofasco Inc. Hamilton

IMIS NO.: 0001460005

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: All phases of iron & steel production including 246 Coke ovens, 4 Blast Furnaces, 2 B.O.F. shops and numerous rolling mills.

EFFLUENT CHARACTERISTICS: Contains heavy metals and light organics.

EFFLUENT TREATMENT: Recycle, clarification, filtration, oil recovery, ion exchange and biological treatment.

DISCHARGE TYPE: continuous through four shore outfalls.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE guidelines.

EXCEEDANCES: None. Company has met its guideline objectives.

REMEDIAL ACTIONS:

COMMENTS:
During the Fall of 1988, an extensive study was conducted to assess effluent locations for possible toxicity to rainbow trout. The following summaries refer to those tests.One of four trout bioassays indicated the West Bay Front Sewer effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 74.0%.Four trout bioassays indicated the Boiler #1 Cooling Water to have been non-acutely lethal to the test fish. Four trout bioassays indicated the Turbo Blower #4 effluent to have been non-acutely lethal to the test fish.One of four trout bioassays indicated the Turbo Blower #5 effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 64.1%.One trout bioassay indicated the #1 Hot Mill effluent to have been non-acutely lethal to the test fish. One trout bioassay indicated the #2 Hot Mill effluent to have been non-acutely lethal to the test fish. Four trout bioassays indicated the Bay Water Intake to have been non-acutely lethal to the test fish.Four trout bioassays indicated the Coke Plant/Melt Shop Sewer effluent to have been non-acutely to the test fish.Four trout bioassays indicated the Ottawa Street Sewer effluent to have been non-acutely lethal to the test fish.

07/22/89

000146-00-0(5) DOFASCO INC HAMILTON REPORT DATE: 01 AUG 89

SUMMARY FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200 0300 0400

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	641362	641362	641362	641362	641362	589984	589984	589984	589984	634932	582256	582256	565327	
M3 /DAY (FTFLOW)															
BOD 5 DAY	ACTUAL	0*	0*	0*	2052	442	147	0*	1499	3892				127	
KG /DAY (BOD5)	GUIDELINE	11800	11800	11800	11800	11800	11800	11800	11800	11800				11800	0
CYANIDE AVAIL	ACTUAL	63.58	19.36	84.19	86.74	77.01	46.06	19.42	39.95	62.46	55.82	54.32	90.6	58.3	
KG /DAY (CCNAUR)	GUIDELINE	157	157	157	157	157	157	157	157	157	157	157	157	157	0
CHROMIUM UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (CRUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787	787	0
IRON UNF.TOT.	ACTUAL	2302	2530	1172	1462	627	839	795	593	711	535	770	1232	1131	
KG /DAY (FEUT)	GUIDELINE	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	0
NH3-N TOTAL	ACTUAL	219.1	959.5	370.2	213.8	0*	3.8004	143.7	272.4	707.3	769.5	723.4	528.1	418	
KG /DAY (NNHTUR)	GUIDELINE	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	0
PH	ACTUAL	7.7	7.6	7.6	7.675	7.7	7.6	7.775	7.8	7.725	7.5	7.7	7.775	7.68	0
(PH)															
PHENOLS UNF-REAC	ACTUAL	6.1	7.33	6.27	2.28	1.6	1.41	0.46	3.54	0.68	4.68	13.68	13.45	5.13	
KG /DAY (PHNOL)	GUIDELINE	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	0
PHOSPHOR UNF.TOT.	ACTUAL	0*	0*	0*	0*	0*	0*	5.1	1.3	0.899998	0*	0*	0*	0*	
KG /DAY (PPUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787	787	0
RESIDUE PARTIC.	ACTUAL	7478	8875	3791	2783	3903	3819	0*	3339	1078	1811	2941	3969	3636	
KG /DAY (RSP)	GUIDELINE	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	0
SOLVENT EXTRACT.	ACTUAL	166	0*	0*	0*	71	138	0*	0*	211				0*	
KG /DAY (SOLEXT)	GUIDELINE	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	0
ZINC UNF.TOT.	ACTUAL	76.59	20.96	27.62	13.79	0*	8.31	11.8	27.86	2.2		14.36	27.43	17.7	
KG /DAY (ZNUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787	787	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 131, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: DOFASCO Ltd. - Adams Mine, Kirkland Lake

IMIS NO.: 0001400001

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 058

RECEIVING WATERBODY: DIRECT: Misema River To Blanche River
INDIRECT:

DESCRIPTION OF ACTIVITY: Mining and concentrating iron ore.

EFFLUENT CHARACTERISTICS: Contains iron, solids, nitrate, turbidity.

EFFLUENT TREATMENT: Tailings pond

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: suspended solids (RSP) -3, iron - 4

REMEDIAL ACTIONS: None.

COMMENTS: The company is in the process of closing the mine; operations will cease in March 1990. There is an interministry committee overseeing the site de-commissioning.

One trout bioassay in 1988 indicated the final effluent to have been non) acutely lethal to the test fish.

08/02/89

000140-00-0(1) DOFASCO LTD. - ADAMS MINE
KIRKLAND LAKE
CONTROL POINT: 0100 DATA FOR 1988
REPORT DATE: 07 AUG 89

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
IRON UNF.TOT.	ACTUAL	1.76	0.32	0.17	1.41	1.16	0.92	0.95	0.64	1.43	0.98	0.85	0.84	0.953	
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	4
NO2+NO3N UNF.REAC	ACTUAL	0.18	0.13	0.21	0.12	0.16	0.09	0.05	0.06	0.04	0.25	0.79	0.42	0.208	
MG/L AS N (NNOTUR)	GUIDELINE														
PH	ACTUAL	7.68	7.5	7.8	7.95	7.18	6.07	9.62	7.5	7.62	7.6	7.8	7.69	7.67	
(PH)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	2	494			305	247	392	435	444	509.5	424	459	371	
MG/L (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	428	9.6		25.3	15	19	2.33	4.5	14	2.5	22	13.5	50.5	
MG/L (RSP)	GUIDELINE	15	15		15	15	15	15	15	15	15	15	15	15	3
TURB'ITY	ACTUAL	29.8	25.3	24.5	57	16	8.7	3.8	8.3	9.5	13.63	9	14.8	18.4	
MG/L (TURB)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 80% IN 1988. **

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Domtar Chemicals Ltd., Sifto Salt Division, Goderich

IMIS NO.: 0000140707

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 079

RECEIVING WATERBODY: DIRECT: Maitland River
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Salt is mined and purified for use.

EFFLUENT CHARACTERISTICS: Contains dissolved chlorides and sulphates of sodium, calcium etc.

EFFLUENT TREATMENT: Settling basins.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE guidelines.

EXCEEDANCES: Yes. suspended solids (RSP).

REMEDIAL ACTIONS: Company initiated improvements in 1988 to sump return system which directs contaminants from bleed-off of evaporation back into brine cavern. All potential sources have been identified and directed to the sump. Improved housekeeping measures have also been implemented.

COMMENTS: The company has indicated that it is doubtful that they can meet the 15 mg/L limit for suspended solids. The company at request of Ministry is now preparing a response, setting out what they feel is an attainable limit employing B.A.T.

07/29/89

000014-07-0(7)   DOMTAR CHEMICALS GROUP   SIFTO SALT DIVISION   GODERICH

CONTROL POINT: 0100 DATA FOR 1988   REPORT DATE: 01 AUG 89

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9058	9319	9421	9243	9023	9183	9123	9274	9115	9047	9153	9160	9176	
M3 /DAY (FTFLOW)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	1409	4817	3464	3886	5722	1281	5505	2231	8146	2131	1908	5819	3860	
MG/L AS CL	GUIDELINE														
PH	ACTUAL	8	8	7.8	7.9	7.9	7.8	7.8	8	7.8	8	7.9	7.8	7.89	
(PH)	GUIDELINE														0
RESIDUE FILTERED	ACTUAL	2924	8665	6360	7159	10518	2838	10191	4420	15757	4313	3795	10989	7327	
MG/L(RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	48	146	112	147	200	51	197	77	325	105	83	211	142	
MG/L(RSP)'	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	12
RESIDUE TOTAL	ACTUAL	2971	8812	6471	7305	10718	2889	10388	4497	16082	4419	3879	11200	7469	
MG/L (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Domtar Chemical Grp., CDC Division
& PLANT LOCATION: Longford Mills

IMIS NO.: 0000140004

MOE REGION: Central

DISTRICT: Barrie

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

SIC CODE: 3761

RECEIVING WATERBODY: DIRECT: Lake St. John
INDIRECT: Georgian Bay

DESCRIPTION OF ACTIVITY: Produces detergents and detergent bases from ethylene oxide, fatty acids, ethylamines, etc.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Activated sludge.

DISCHARGE TYPE: Continuous - treated wastewaters are joined by clean cooling water prior to discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE):

MOE OR FEDERAL GUIDELINES:

EXCEEDANCES: None

REMEDIAL ACTIONS:

COMMENTS:

05/02/89

000014-00-0(4)   DOMTAR INC.
CONTROL POINT: 0100 DATA FOR 1988
FLOW/CONCENTRATION PARAMETERS

LONGFORD MILLS

REPORT DATE: 19 OCT 89

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL										1197	1265		1231	
M3 /DAY (FTFLOW)	GUIDELINE														
MET BLUE ACT.SUB	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
MG/L AS LAS	GUIDELINE														
NH3-N TOTAL	ACTUAL	0.6	0.6	0.5	0.5	0.5	0.6	0.5	0.3	0.4	0.4	0.4	0.3	0.467	
MG/L AS N (NNHTUR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
NO3-N UNF.REAC	ACTUAL	0	0	0	0	0	0	6	5	4	5	1	3	2	
MG/L AS N (NNO3UR)	GUIDELINE														
PH	ACTUAL	8.2	8	8.2	8.1	8.1	8.1	8.3	8.3	8.4	7.9	8	7.8	8.12	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
MG/L PHENOL	GUIDELINE	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0
PHOSPHOR UNF.TOT.	ACTUAL	0.07	0.05	0.04	0.04	0.03	0.04	0.03	0.06	0.06	0.08	0.05	0.05	0.05	
MG/L AS P (PPUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
RESIDUE FILTERED	ACTUAL	5	4	4	5	5	4	4	2	6	5	3	5	4.33	
MG/L (RSF)	GUIDELINE														
CARBON TOTAL	ACTUAL	6.6	7	6.7	7.3	6.3	6	7.6	6.7	7	6.4	5.7	6	6.61	
MG/L AS C (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Domtar Fine Papers Cornwall

IMIS NO.: 0000140301

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Fine paper is made from logs and chips by the kraft pulping process and from purchased pulp.

EFFLUENT CHARACTERISTICS: Contains dissolved and suspended solids generated from the pulping of wood, the bleaching of pulp and the manufacture of paper.

EFFLUENT TREATMENT: Primary using a clarifier.

DISCHARGE TYPE: Continuous through a submerged diffuser

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A production-based total suspended solids limit was to become effective June 30, 1987. The company has asked for an extension until January 31,1989. An amending Control Order was issued on May 22, 1987, granting the extension but adding a requirement for financial assurance. The company appealed and after an extensive hearing, the Appeal Board decided to revoke the suspended solids limit on the Order.

MOE OR FEDERAL GUIDELINES: BOD5 target load set by Pulp and Paper Effluent Regulations, Ottawa 1972 (Federal) guidelines.

EXCEEDANCES: None.

REMEDIAL ACTIONS: A new Control Order, part of the province-wide program to reduce the discharge of chlorinated compounds (measured as (AOX) from the Ontario kraft mills, will be served in 1989. Limits for BOD and RSP will also be set.

COMMENTS: Company is part of MISA Pulp and Paper Sector which will lead to enforceable requirements.

Two trout bioassays conducted in 1988, indicated that both the final clarifier effluent, and the Sewer Bypass effluent, to have been non-acutely lethal to the test fish.

10/16/89

000014-03-0(1) DOMTAR FINE PAPERS CORNWALL REPORT DATE: 08 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	105261	106031	105231	103121	105781	105451	107901	109141	109501	111911	112381	106071.1	107315	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	14742	17270	18040	15620	15230	12540	15040	15470	17570	16860	16760	13760	15742	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
PHOSPHOR UNF.TOT.	ACTUAL	29.5	27	33	34	27.5	21.1	25.9	30.6	21	29.1	33.7	39.2	29.3	
KG /DAY (PPUT)	GUIDELINE	105	106	105	103	106	105	108	109	110	112	112	106	107	0
RESIDUE FILTERED	ACTUAL	103879	102501	114801	99740	98080	101071	100701	103201	104181	102201	101741	100971.1	102756	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	8620	6400	6980	6320	5870	6550	7750	6760	6680	6730	8500	8820	7165	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Domtar Fine Papers
& PLANT LOCATION: St. Catharines

IMIS NO.: 0000140509

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek
INDIRECT: 9.1 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Pulp and clean waste paper are converted into paper products.

EFFLUENT CHARACTERISTICS: Enough fibres (fine) to make effluent look "milky".

EFFLUENT TREATMENT: Extensive reuse of wastewater and primary clarifier (preceded by several "Savealls" and screens. Type of starch used was changed to reduce BOD load.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Target loads set by Pulp and Paper Committee with Best Practicable Technology.

EXCEEDANCES: Company exceeded Pulp and Paper Committee guidelines for BOD5 throughout 1988.

REMEDIAL ACTIONS: Company completed feasibility study of effluent secondary treatment (RBC's) and wastewater diversion to sanitary sewer. Domtar has further submitted a request to conduct a pilot study, incorporating a bio-augmentation process into the existing primary treatment system. Pilot study will take four (4) months to complete. Final treatment option to be selected following completion of pilot study in March, 1990. Application to be submitted for Approval's review in November.

COMMENTS:

One of four trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 82.7%.

07/19/89

000014-05-0(9) DOMTAR FINE PAPERS ST.CATHARINES REPORT DATE: 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9331	9612	9402	9402	8464	8500	9202	9580	9597	9417	9153	9367	9252	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	671	808	1019	706	703	770	596	657	701	782	839	1029	773	
KG /DAY (BOD5)	GUIDELINE	467	481	470	470	423	425	460	479	480	471	458	468	463	12

CONTROL POINT: 0300 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE FILTERED	ACTUAL	1465	1722	2275	1341	1249	1111	733	878	1612	1497	1077	1360	1360	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	231	255	323	185	111	96	137	158	221	122	66	166	173	
KG /DAY (RSP)	GUIDELINE	467	481	470	470	423	425	460	479	480	471	458	468	463	

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Domtar Packaging Ltd.
& PLANT LOCATION: Red Rock

IMIS NO.: 0000140202

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior (Nipigon Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood logs and chips are made into newsprint and liner board by the groundwood and kraft processes. Kraft mill semi-bleaches some pulp.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and organic compounds (some chlorinated) from the pulping process.

EFFLUENT TREATMENT: Clarifier for high solids wastewaters and spill pond. Foul condensates are steam stripped of odourous organic compounds.

DISCHARGE TYPE: All mill effluents are combined into one ditch for discharge to Lake Superior.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on Sept. 29, 1986. The Company is required to meet specific BOD and TSS loadings averaged over 30 consecutive working days on the total mill effluent discharged (BOD - 23 metric tonnes/day [23,000 kg/day] and suspended solids - 5.5 metric tonnes/day [5,500 kg/day]). In addition, the Company is required to meet a toxicity requirement.

EXCEEDANCES: Two suspended solids (RSP) exceedances in 1988

REMEDIAL ACTIONS: The exceedances were due to clarifier maintenance. The problem has been fixed and is not expected to reoccur.

COMMENTS:

In 1988, three of five trout bioassays indicated the final effluent to have been lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 33.5% to 80.6%. Improvements to pulp washing capabilities are expected to significantly reduce toxicity in 1989.

07/31/89

000014-02-0(2)   DOMTAR PACKAGING LTD.   RED ROCK   REPORT DATE: 26 JUNE 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	60400	89900	93900	93530	98110	104161	105301	111701	109701	101701	99200	94700	96858	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	15250	16960	18670	18070	18270	17220	15500	13920	14930	15890	17660	16440	16565	
KG /DAY (BOD5)	REQUIREMENT	23000	23000	23000	23000	23000	23000	23000	23000	23000	23000	23000	23000	23000	
RESIDUE PARTIC.	ACTUAL	4290	5140	5670	5380	4390	5820	5320	4660	4620	4500	4270	3960	4835	2
KG /DAY (RSP)	REQUIREMENT	5500	5500	5500	5500	5500	5500	5500	5500	5500	5500	5500	5500	5500	

NOTE: S/C -SEE COMMENT, D* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Domtar Packaging, Trenton

IMIS NO.: 0000140608

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Trent River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Hardwood (maple, poplar) chips are made into pulp by a sodium carbonate cook; the pulp is formed into corrugating medium. To eliminate odour compliants, process was changed from sulphur cooking to carbonate chemicals.

EFFLUENT CHARACTERISTICS: Low wastewater volume. High concentration of BOD5 and suspended solids.

EFFLUENT TREATMENT: Spent cooking liquor is stored separately for use as a binder/road dust suppresant (30 years of experience). No wastewater treatment facilities; approached historically through water recycling/wastewater reduction.

DISCHARGE TYPE: Continuous diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Control Order requiring further improvements in suspended solids (RSP), BOD5, phosphorus and bacteria reduction and addressing of effluent toxicity problem expected to be in place by the end of 1989.

MOE OR FEDERAL GUIDELINES: Under the Pulp and Paper Effluent Regulations, Ottawa 1972 (Federal), based on 1988 production, the average limits were 1,879 kg/day for suspended solids and 6,797kg/day for BOD5.

EXCEEDANCES: Yes. 3 months for BOD5 and 4 months for suspended solids.

REMEDIAL ACTIONS: Design of new whitewater storage tank and pulp stock washer for subsequent approval and construction during 1989.

COMMENTS:

Four trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 12.7% to 50.0%.

07/22/89

000014-06-0(8)   DOMTAR PACKAGING   TRENTON   REPORT DATE: 10 MAY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3960	3528	3765	4537	3972	3572	3294	3080	2903	3419	3271	2612	3493	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	7426	6667	6676	8058	8461	6049	5278	6207	5679	6575	6010	4139	6435	3
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	2871	2311	1280	2246	1589	1500	1296	2008	1292	1470	1439	1327	1719	4
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 71% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Domtar Wood Preserving Trenton	IMIS NO.: 0000141200
MOE REGION:	Southeast	DISTRICT: Kingston
INDUSTRIAL SECTOR:	Wood Preserver	SIC CODE: 2591
RECEIVING WATERBODY:	DIRECT: Trent River INDIRECT: Bay of Quinte, Lake Ontario	

DESCRIPTION OF ACTIVITY: Wood preserving: Creosote and oil for hardwood railway ties and oil and pentachlorophenol for utility poles.

EFFLUENT CHARACTERISTICS: Contamination by oil and grease, suspended solids, chlorophenol, phenols and low levels of dioxins and furans.

EFFLUENT TREATMENT: Stormwater management system is implemented. Contaminated stormwater is treated via dissolved air floatation clarifier with polymer addition and activated carbon filters.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Effluent criteria for north an far north outfalls set out in C. of A # 4-204-88-896 dated Feb. 17, 1989. Phenols 15 mg/L (PHNOL): Oil & Grease: 2 mg/L (SOLEXT); Pentachlorophenol: 10ug/L (X3PCPH). Effluent for stormwater treatment system discharges via north outfall. Phenols: 15 ug/L; max. loading 0.03 kg/day; oil & grease: 2mg/L, max. loading 3.9 kg/day; Pentachlorophenol: 10ug/L , max. loading 0.02 kg/day. Effluent criteria to be reviewed upon completion of performance evaluation of stormwater treatment system in July 1989.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 20 ug/L for phenols and 15 mg/L for oil & grease are applicable for assessment of discharges in 1988.

EXCEEDANCES: Yes. Exceedances of Provincial guideline for phenol in 7 months out of 10 reported on.

REMEDIAL ACTIONS: Contorl Order issued in March 1988 requiring company to install stormwater treatment system, stormwater management system and leachate collection system. Certificate of Approval for stormwater treatment system issued in Sept. 1988 and system construction completed and operational in December 1988. C. of A issued Oct. 1988 and system construction completed in Dec. 1988 with exception of pump installation. Pump installation and operation slated for late spring 1989. C. of A. for stormwater management system issued Feb. 1989 with construction slated for early summer 1989.

COMMENTS: Review of effluent criteria to be conducted in summer of 1989 upon completion of performance evaluation of stormwater treatment system. Effluent criteria for far north outfall discharge to become effective in Dec. 1990.

07/22/89

000014-12-0(0)   DOMTAR WOOD PRESERVING   TRENTON, P.O.BOX 460   REPORT DATE: 10 MAY 89

SUMMARY FOR EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA   DISCHARGED INTO: 02/004/1220   TRENT R.

INCLUDES CONTROL POINTS: 0100 0200 0300

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	223	254.9	330.6	201	242	211	170	187	159	88	315	293	223	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.017	0.018	0.023	0.004	0.0036	0.006	0.0047	0.007	0.039	0.001			0.012	
KG /DAY (PHNOL)	GUIDELINE	0.004	0.005	0.005	0.004	0.005	0.004	0.003	0.004	0.003	0.002			0.004	7
SOLVENT EXTRACT.	ACTUAL	2.132	0.819	2.239	1.229	0.512	0.19	0.082	0.109	0.232	0.03			0.757	
KG /DAY (SOLEXT)	GUIDELINE	3.35	3.82	4.96	3.02	3.63	3.17	2.55	2.81	2.39	1.32			3.1	0
PENTACHL PHENOL	ACTUAL	0.236	0.192	0.313	0.111	0.081	0.063	0.016	0.079	0.7	0.067	0.903	0	0.23	
KG /DAY (X3PCPH)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY GUIDELINE 7 OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 65% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Dow Chemical Canada Inc
& PLANT LOCATION: Sarnia

IMIS NO.: 0000910109

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

SIC CODE: 3712, 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Produces solvents, chlorine, caustic, acids, plastics, vinyl chloride and miscellaneous hydrocarbons.

EFFLUENT CHARACTERISTICS: Contains chlorinated and aromatic hydrocarbons, sodium chloride.

EFFLUENT TREATMENT: Secondary treatment including saltwater biotreatment, incineration

DISCHARGE TYPE: continuous through seven outfalls

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

In 1988, one trout bioassay indicated the 42" Sewer effluent to have been non-acutely lethal to the test fish.

07/29/89

000091-01-0(9) DOW CHEMICAL CANADA INC SARNIA DIVISION PO BOX 3030 SARNIA REPORT DATE: 20 OCT 89

SUMMARY FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ ST. CLAIR RIVER

INCLUDES CONTROL POINTS: 0200 0300 0500 0600 0700 0900 1000

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	778000	653480	642320	603000	603000	608000	705680	664000	767000	825000	729000	729000	692290	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.77	7.8	7.93	8.03	8.04	8.14	8.31	8.3	8.24	8.18	8.11	8.14	8.08	
(PH)	GUIDELINE														0
ALK TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (ALKT)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	1.1	0.85	1.33	1.35	0.92	0.67	0.72	0.93	1.12	0.56	0.93	1.3	0.982	
KG /DAY (PHNOL)	GUIDELINE	15.56	13.07	12.85	12.06	12.06	12.16	14.11	13.28	15.34	16.5	14.58	14.58	13.85	0
RESIDUE PARTIC.	ACTUAL	1770	1650	2030	1110	1010	2610	3490	2770	2880	2550	1500	1780	2096	
KG /DAY (RSP)	GUIDELINE	11670	9802	9635	9045	9045	9120	10585	9960	11505	12375	10935	10935	10384	0
ORG. CARBON TOTAL	ACTUAL	650	540	240	110	60	60	120	330	530	420	240	260	297	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Dupont Canada Inc.
& PLANT LOCATION: Corunna

IMIS NO.: 0000080309

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemical, Synthetic Fibres

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock (ethylene) from the petroleum refineries in Sarnia is used to make high and low density polyethelyene.

EFFLUENT CHARACTERISTICS: Contains cyclohexane and phenols.

EFFLUENT TREATMENT: Physical.

DISCHARGE TYPE: continuous at shore

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None.

REMEDIAL ACTIONS: None required.

COMMENTS:

07/29/89

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000008-03-0(9)    DU PONT CANADA INC ST CLAIR RIVER WORKS          CORUNNA                                                            REPORT DATE: 05 AUG 89
CONTROL POINT: 0200 DATA FOR 1988                                                                                                          ANNUAL    TOTAL
FLOW/LOADING          PARAMETERS               JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG.     SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                   ACTUAL                44928    46656    46656    46656    49248    52704    55296    57888    53568    38016    44064    42336    48168
M3 /DAY (FTFLOW)    GUIDELINE

PHENOLS UNF-REAC       ACTUAL                 0.18     0.09     0.09     0.09     0.15     0.11     0.31     0.04        0        0      0.2     0.06     0.11
KG /DAY (PHNOL )    GUIDELINE                0.899    0.933    0.933    0.933    0.985     1.05     1.11     1.16     1.07     0.76    0.881    0.847    0.963         0

NOTE: S/C -SEE COMMENT.  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS       -
*****************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Dupont Canada Inc., (Kingston Site) Kingston Twp.	IMIS NO.: 0000080101
MOE REGION:	Southeast	DISTRICT: Kingston
INDUSTRIAL SECTOR:	Organic Chemicals, Synthetic Fibres	SIC CODE: 1811
RECEIVING WATERBODY:	DIRECT: 0.9 Km to Lake Ontario INDIRECT:	

DESCRIPTION OF ACTIVITY: Adipic acid and Hexamethlyenediamine react to form a synthetic-nylon.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics such as phenols.

EFFLUENT TREATMENT: Partial settling.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 20 ppb for phenols (PHNOL)

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

07/22/89

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000008-01-0(1)    DUPONT CANADA INC.                                       KINGSTON TOWNSHIP                                       REPORT DATE: 03 AUG 89
S U M M A R Y  FOR  EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA  DISCHARGED INTO: 02/004/      LAKE ONTARIO
                    INCLUDES CONTROL POINTS:  0100 0200
                    DATA FOR 1988                                                                                                    ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS          JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL          42064    38450    39594    42628    60310    80234    94548   110959   109427    92714    55446    42380    67396
M3 /DAY (FTFLOW)    GUIDELINE

PH                    ACTUAL          8.085    7.925     8.01    8.125     8.13    8.255    8.255     8.23     8.15     8.15     8.21     8.19     8.14
(PH )               GUIDELINE                                                                                                                        0

PHENOLS UNF-REAC      ACTUAL          0.053    0.002    0.099     0.03     0.32     0.39     0.61     0.94     0.24        0        0        0    0.224
KG /DAY (PHNOL )    GUIDELINE         0.841    0.769    0.792    0.853     1.21      1.6     1.89     2.22     2.19     1.85     1.11    0.848     1.35       0

CARBON TOTAL          ACTUAL          523.7    534.5    530.6    605.3    907.7     1011   1049.5   1392.6     1308     1177      751      574      864
KG /DAY (TOC )      GUIDELINE          1402     1282     1320     1421     2010     2674     3151     3698     3647     3090     1848     1413     2246       0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
***************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Dupont Canada Inc.
& PLANT LOCATION: Maitland

IMIS NO.: 0000080002

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

SIC CODE: 3712

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Cyclohexane is converted inot adipic acid; adiponitrile is converted to hexamethylen diamine; also produces spandex yarn, hydrogen peroxide, chlorofluorocarbons and engineering polymers.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics.

EFFLUENT TREATMENT: Activated sludge, with nitrification/denitrification

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 15 mg/L for BOD and 15 mg/L for suspended solids (RSP -residue particulate).

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Effluent consists of separate outfalls for STP and cooling water - activated sludge plant effluent.

07/22/89

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000008-00-0(2)    DUPONT CANADA INC.                                    MAITLAND                                                           REPORT DATE: 08 AUG 89
S U M M A R Y  FOR  EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA  DISCHARGED INTO: 02/005/       ST. LAWRENCE R.
                    INCLUDES CONTROL POINTS:  0200 0300
                    DATA FOR 1988                                                                                                           ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS          JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL         171901   165301   166001   164201   174101   178001   203501   231901   148801   181601   161501   158601   175451
M3 /DAY (FTFLOW)    GUIDELINE

BOD 5 DAY             ACTUAL          470.7    526.3    330.9    387.5    427.8    633.6    560.8    293.9    408.8    440.7    266.2      681      452
KG /DAY (BOD5 )     GUIDELINE        2578.5   2479.5     2490     2463   2611.5     2670   3052.5   3478.5     2232     2724   2422.5     2379   2631.7          0

KJELDAHL ORGANIC      ACTUAL          241.7    212.3    443.6    398.4    277.6    141.5    193.2     95.3     81.6    143.7    367.4      492    257.4
KG /DAY (NNKUR )    GUIDELINE

RESIDUE PARTIC.       ACTUAL          497.8    524.9      914    372.6    709.7  1262.59    467.4    508.5  1371.89     2427  1780.29  2315.29     1096
KG /DAY (RSP )      GUIDELINE        2578.5   2479.5     2490     2463   2611.5     2670   3052.5   3478.5     2232     2724   2422.5     2379   2631.7          0

CARBON TOTAL          ACTUAL          452.9    549.7      479    585.7      498      498    400.7    244.9    255.8    341.8    424.6   1386.9    509.8
KG /DAY (TOC )      GUIDELINE

NOTE: S/C -SEE COMMENT.  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS       -
******************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS  0 OUT OF  24. FOR A TOTAL COMPLIANCE RECORD OF   100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Eastmaque Gold Mines Ltd.
& PLANT LOCATION: Kirkland Lake
IMIS NO.: 0111350005

MOE REGION: Northeast
DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Smelting
SIC CODE: 0591

RECEIVING WATERBODY: DIRECT:
INDIRECT:

DESCRIPTION OF ACTIVITY: 1820 metric tonne flotation mill reprocessing old gold mine tlailings to produce a solid condentrate.

EFFLUENT CHARACTERISTICS: suspended solids, nickel, copper, lead, zinc, arsenic, phenosl, phosphorus.

EFFLUENT TREATMENT: settling of tailings in retention pond.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): March 29, 1989.

EXCEEDANCES: None company in compliance.

REMEDIAL ACTIONS: None.

COMMENTS: Company began operations in 1988 while discussions of C. of A appeal were taking place. The company agreed to follow the effluent criteria set out in the C. of A.

One trout bioassay in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

08/02/89

011135-00-0(5)   EASTMAQUE GOLD MINES LTD   KIRKLAND LAKE   REPORT DATE: 07 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL						0	0.01	0	0	0	0	0	0.001	
MG/L AS AS	GUIDELINE						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
COPPER UNF.TOT.	ACTUAL						0	0.01	0.01	0.02	0.01	0.01	0	0.009	
MG/L AS CU	GUIDELINE						1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL						0.11	0.16	0.1	0.19	0.15	0.16	0.13	0.143	
MG/L AS FE	GUIDELINE						1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL						0.01	0.06	0.01	0.01	0.02	0.01	0	0.017	
MG/L AS NI	GUIDELINE						1	1	1	1	1	1	1	1	0
LEAD UNF.TOT.	ACTUAL						0.02	0.03	0.04	0.05	0.05	0.02	0.02	0.033	
MG/L AS PB	GUIDELINE						1	1	1	1	1	1	1	1	0
PH	ACTUAL						7.27	7.28	7.56	7.63	7.96	7.73	7.56	7.57	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL						0.14	0.28	1.13	1.16	1.95	8.3	7.58	2.93	
MG/L (RSP)	GUIDELINE						15	15	15	15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL						0.01	0.03	0.12	0.01	0.03	0.04	0.02	0.037	
MG/L AS ZN	GUIDELINE						1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 56, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: E. B. Eddy Forest Products Ltd.
& PLANT LOCATION: Espanola

IMIS NO.: 0000980003

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Spanish River
INDIRECT: 47 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Hardwood and softwood logs and chips are converted by the bleached kraft pulping process into pulp and paper.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper) and dissolved organic compounds.

EFFLUENT TREATMENT: Two clarifiers on paper machine effluents; the total effluent is treated by settling basins, an aeration lagoon and a settling lagoon. Foul condensates are steam stripped to remove odourous organics. In-mill recovery systems remove bark fines and fibre in the wastewaters from pulp washing, paper machine and bleaching areas.

DISCHARGE TYPE:

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): The BOD limit of 3630 kilograms per day is specified in the Control Order

MOE OR FEDERAL GUIDELINES: The Total Suspended solids value is a guideline number.

EXCEEDANCES: None. In compliance with Control Order.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000098-00-0(3) E.B.EDDY FOREST PRODUCTS LIMITED STATION ROAD ESPANOLA

REPORT DATE: 18 OCT 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1080	1080	1073	930	12000	13200	11700	13420	11580	13120	12530	11470	11700	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.3	7.2	7.2	7.1	7.8	7.2	7.3	7.2	7.2	7.1	7.3	7.3	7.27	0
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	2270	2630	2090	1360	1910	1815	1720	1090	1450	1910	2540	1815	1880	
KG /DAY (BOD5)	REQUIREMENT	3630	3630	3630	3630	3630	3630	3630	3630	3630	3630	3630	3630	3630	0
RESIDUE PARTIC.	ACTUAL	5540	5990	4720	3810	5540	5540	5080	4175	4810	5195	6535	8170	5425	
KG /DAY (RSP)	GUIDELINE	10600	10600	10600	10600	10600	10600	10600	10600	10600	10600	10600	10600	10600	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: E.B. Eddy Forest Products Ltd.
Ottawa

IMIS NO.: 0000980201

MOE REGION: Southeast

INDUSTRIAL SECTOR: Pulp and Paper Mill

DISTRICT: Ottawa

RECEIVING WATERBODY: DIRECT: Ottawa River
INDIRECT: St. Lawrence River

SIC CODE: 271

DESCRIPTION OF ACTIVITY: Converts pulp into paper for writing and printing.

EFFLUENT CHARACTERISTICS: Contains suspended solids (paper) and trace organics.

EFFLUENT TREATMENT: Three "Savealls", whitewater recycle systems and a clarifier remove solids.

DISCHARGE TYPE: Continuous through a discharge pipe.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (May 1978) The Control Order specifies that E. B. Eddy cannot exceed 9 lbs of suspended solids discharged per ton of saleable product. The Control Order will be amended in 1989 to bring it into conformity with current Ministry policy.

MOE OR FEDERAL GUIDELINES: (May 1978) MOE guideline for BOD5 is 1200 kg/day.

EXCEEDANCES: Yes. BOD5 eleven times.

REMEDIAL ACTIONS: The new control Order will address the BOD and suspended solids in conjunction with the MISA regulation.

COMMENTS:

In 1988, two trout bioassays indicated the final effluent to have been non-acutely lethal to the test fish.

07/15/89

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000098-02-0(1)    E B EDDY FOREST PRODUCTS LIMITED            OTTAWA
CONTROL POINT: 0100 DATA FOR 1988                                                         REPORT DATE: 19 OCT 89
                                                                                                                                  ANNUAL     TOTAL
FLOW/LOADING      PARAMETERS         JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------
FLOW               ACTUAL           7790    8490    7480    7270    8920    9430   10080    1053    9221    8106    7031    6496    7614
M3 /DAY (FTFLOW)  REQUIREMENT

BOD 5 DAY          ACTUAL           1380    1370    1210    1190    1700    1490    1720    2140    2174    2251    1968    1467    1672
KG /DAY (BOD5 )   GUIDELINE         1200    1200    1200    1200    1200    1200    1200    1200    1200    1200    1200    1200    1200      11

RESIDUE PARTIC.    ACTUAL            490     510     440     380     540     520     520     520     386     487     458     428     473
KG /DAY (RSP )    REQUIREMENT     S/C     S/C       S/C   S/C      S/C       S/C     S/C   S/C     S/C       S/C     S/C     S/C

NOTE: S/C -SEE COMMENT.  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS       -
*************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   11 OUT OF  24, FOR A TOTAL COMPLIANCE RECORD OF 54% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Esso Chemical Canada Ltd Sarnia	IMIS NO.: 0000070201
MOE REGION:	Southwest	DISTRICT: Sarnia
INDUSTRIAL SECTOR:	Organic Chemicals, Synthetic Fibres	SIC CODE: 3712, 3731
RECEIVING WATERBODY:	DIRECT: St. Clair River INDIRECT:	

DESCRIPTION OF ACTIVITY: Polymerizes ethylene produced from natural gas and feed from petroleum refinery to produce polyethylene. Polymerizes vinyl chloride monomer to produce polyvinyl chloride. Fractionates feed from refinery to produce benzene, toluene and xylene.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble hydrocarbons.

EFFLUENT TREATMENT: Physical and chemical including carbon bed adsorption.

DISCHARGE TYPE: continuous through an extended outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial

EXCEEDANCES: None.

REMEDIAL ACTIONS: None required as company in compliance with standards.

COMMENTS:

07/29/89

000007-02-0(1)   ESSO CHEMICAL CANADA DIVISION OF IMPERIAL OIL LTD   PO BOB 3004 SARNIA   REPORT DATE: 20 OCT 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	30699.7	29699.6	29599.5	29599.5	29699.6	31199.8	32500	29499.5	29899.6	30499.7	30599.7	31399.8	30408	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.2	7.5	7.3	7.2	7.3	7.5	7.6	7.8	7.4	7.5	7.5	7.5	7.44	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	12.28	38.61	2.96	2.96	8.91	6.24	0	14.75	14.95	18.3	12.24	6.28	11.5	
KG /DAY (NNHTFR)	GUIDELINE	307	297	296	296	297	312	325	295	299	305	306	314	304	0
PHENOLS UNF-REAC	ACTUAL	0.015	0.042	0.03	0.041	0.048	0.025	0.046	0.035	0.039	0.021	0.037	0	0.032	
KG /DAY (PHNOL)	GUIDELINE	0.614	0.594	0.592	0.592	0.594	0.624	0.65	0.59	0.598	0.61	0.612	0.628	0.608	0
RESIDUE FILTERED	ACTUAL	424	16[illegible]	3419	1498	1978	1560	2022	876	1088	1156	1888	1218	1561	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	328.5	169.3	192.4	71	249.5	159.1	0	50.2	0	88.5	299.99	244.9	154	
KG /DAY (RSP)	GUIDELINE	460	445	444	444	445	468	487	442	448	457	459	471	456	0
SOLVENT EXTRACT.	ACTUAL	0	5.94	5.92	8.88	0	0	3.25	5.9	8.97	9.15	15.3	25.12	7.37	
KG /DAY (SOLEXT)	GUIDELINE	307	297	296	296	297	312	325	295	299	305	306	314	304	0
SULPHIDE UNF.REAC	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	0	193.1	222	59.2	118.8	221.5	123.5	218.3	119.6	283.7	159.1	219.8	162	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Esso Petroleum Canada
& PLANT LOCATION: Sarnia

IMIS NO.: 0000070102

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651, 3652

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble compounds from crude oil at the parts per billion range.

EFFLUENT TREATMENT: Once through cooling water receives gravity separation prior to discharge to the St. Clair River. Process and essentially all storm water receives both primary and secondary (biological) treatment before discharge. High strength wastewaters and effluent from the sour water stripper are biologically pretreated before discharge to the activated sludge process. Other wastewaters are filtered by sand and anthracite before discharge to the activated sludge process.

DISCHARGE TYPE: continuous through three outfalls

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None.

REMEDIAL ACTIONS: None required.

COMMENTS:

One trout bioassay in 1988 indicated the Biox effluent to have been non-acutely lethal to the test fish.

07/29/89

000007-01-0(2)   ESSO PETROLEUM CANADA A DIV. OF IMPERIAL OIL LTD.   PO BOX 3004   SARNIA

CONTROL POINT: 0200 DATA FOR 1988

REPORT DATE: 20 OCT 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	211603	211003	211903	216503	215876	215503	219104	218504	213203	215003	220327	236009	217045	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.8	7.5	7.7	7.6	7.6	7.8	8	8.2	8.1	7.9	8.1	8	7.78	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	19	27	2	7	0*	7	5	13	8	11	0*	11.29	7.02	
KG /DAY (NNHTFR)	GUIDELINE	2116	2110	2119	2165	2159	2155	2191	2185	2132	2150	2203	2360	2170	0
PHENOLS UNF-REAC	ACTUAL	0.14	0.23	0.13	0.05	0.01	0.11	0.09	0.05	0.29	0.19	0*	0.1669	0.13	
KG /DAY (PHNOL)	GUIDELINE	4.23	4.22	4.24	4.33	4.32	4.31	4.38	4.37	4.26	4.3	4.41	4.72	4.34	0
RESIDUE FILTERED	ACTUAL	11607	11064	0*	15461	0*	7200	7527	9448	21826	9689	46343		12679	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0*	0*	440	0*	69	0*	0*	0*	0*	0*	363	258.695	0*	
KG /DAY (RSP)	GUIDELINE	3174	3165	3179	3248	3238	3233	3287	3278	3198	3225	3305	3540	3256	0
SOLVENT EXTRACT.	ACTUAL	0*	76	12	39	0*	0*	0*	174	140	26	36	8.3139	30.6	
KG /DAY (SOLEXT)	GUIDELINE	3174	3165	3179	3248	3238	3233	3287	3278	3198	3225	3305	3540	3256	0
SULPHIDE UNF.REAC	ACTUAL	0	0	0	0	0	2.3	0	0	0	0*	0*	0.97	0*	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	0*	430.1	257.5	147.8	151.9	411.9	0*	385.5	0*	252.2	0*	517.76	67.6	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF   60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ethyl Canada Inc.
& PLANT LOCATION: Corunna

IMIS NO.: 0000120006

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

SIC CODE: 3712

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Tetramethyl lead and Tetraethyl lead are made from a lead-sodium alloy and methyl or ethyl chloride. Various other fuel additives are blended.

EFFLUENT CHARACTERISTICS: Contains organic lead and miscellaneous trace hydrocarbons.

EFFLUENT TREATMENT: Physical-chemical.

DISCHARGE TYPE: continuous tnrough an extended outfall

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL : C of A #4-021-86-006 for combined plant effluent for alkyl load.

EXCEEDANCES: None required.

REMEDIAL ACTIONS: None required.

COMMENTS:

07/29/89

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000012-00-0(6)    ETHYL CANADA INC                                      CORUNNA                                                                    REPORT DATE: 05 AUG 89
CONTROL POINT: 0100 DATA FOR 1988                                                                                                                     ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS            JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                    ACTUAL          25950    25572    25167    24900    28311    42410    43552    43804    36333    38214    32285    43707    34184
M3 /DAY (FTFLOW)    GUIDELINE

LEAD UNF.TOT.           ACTUAL           11.9     11.6      5.5        7      8.1      8.7      8.4      9.1     10.8      0.3     17.5     28.2     10.6
KG /DAY (PBUT )     GUIDELINE              26     25.6     25.2     24.9     28.3     42.4     43.6     43.8     36.3     38.2     32.3     43.7     34.2           0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
*****************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Exolon
& PLANT LOCATION: Thorold

IMIS NO.: 0001640002

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 3571

RECEIVING WATERBODY: DIRECT: 9.7 km from Beaverdams Pond to 12 Mile Creek
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Manufactures abrasive products

EFFLUENT CHARACTERISTICS: Furnace cooling water.

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

07/19/89

000164-00-0(2)   EXOLON   THOROLD   REPORT DATE: 05 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10900.8	10900.8	10900.8	10900.8	10900.8	10900.8	10900	10900	10900	10900	10900	10900	10900	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0	0	0	21.8	10.9	0	0	0	0	10.9	0	0	3.63	
KG /DAY (RSP)	GUIDELINE	164	164	164	164	164	164	163	163	163	163	163	163	164	0
SOLVENT EXTRACT.	ACTUAL	5.4	0	3.2	1	0	0	0	4.3	5.4	0	9.8	9.8	2.46	
KG /DAY (SOLEXT)	GUIDELINE	164	164	164	164	164	164	163	163	163	163	163	163	164	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Explosives Technologies International Inc. (ETI)
& PLANT LOCATION: Nipissing Works
North Bay

IMIS NO.: 0000080200

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3799

RECEIVING WATERBODY: DIRECT: Wasi River - Lake Nipissing
INDIRECT: 121 km from French R. Main Channel

DESCRIPTION OF ACTIVITY: Production of explosives based on ammonium nitrate and methylamine nitrate.

EFFLUENT CHARACTERISTICS: Contains nitrates and ammonia.

EFFLUENT TREATMENT: Equalization pond for pH control.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the control of Industrial Waste Discharges in Ontario.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: There are two outfalls: pond effluent and building #339 effluent.

05/02/89

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000008-02-0(0)    EXPLOSIVE TECHNOLOGIES INTERNATIONAL LTD.          NORTH BAY ONT                                               REPORT DATE: 25 SEP 89
S U M M A R Y  FOR  EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA  DISCHARGED INTO: 02/002/5430   FRENCH R. MAIN CHANNEL
                    INCLUDES CONTROL POINTS:  0100 0200
                    DATA FOR 1988                                                                                                    ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS        JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC   AVERAGE EXCEEDANCES
------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL         2596    2487  2665.4    2800    2742    2231    2027    2401    3321    3404    3362    2248     2690
M3 /DAY (FTFLOW)    GUIDELINE

NH3-N TOTAL           ACTUAL          4.9       5     5.2     8.4     8.9     8.2     7.3     4.2     5.8     5.6     7.3     3.3     6.17
KG /DAY (NNHTFR)    GUIDELINE        25.6    24.9    26.7      28    27.4    22.3    20.3      24    33.2      34    33.6    22.5     26.9         0

NO2+NO3N FIL.REAC     ACTUAL         51.1     3.9     4.3     252     5.1       7     4.7     4.8    13.6    12.5       9     5.2     31.1
KG /DAY (NNOTFR)    GUIDELINE

PH FIELD              ACTUAL          6.3     6.5     6.8       7     7.1     7.2     7.1     6.6     6.6     6.7     6.7     6.8     6.78
(FWPH )             GUIDELINE                                                                                                                       0

RESIDUE FILTERED      ACTUAL        124.7     354     259    10.1    1577   279.2      89   121.6   287.5     371     194   146.8      318
KG /DAY (RSF )      GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS  5.50 -  9.50
******************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  24. FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Falconbridge Ltd.
& PLANT LOCATION: Falconbridge, Nir Road

IMIS NO.: 0001700004

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Coniston Creek to Wanapitei River
INDIRECT: 80 km. to Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Converts ore into metallic matte.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with Calcium Oxide (quicklime)/ slag granulation water neutralized as well.

DISCHARGE TYPE: Continuous decant flow from main tailings area

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Requirements as of October, '87 are Mineral Mining Guidelines as specified in Certificate of Approval.

EXCEEDANCES: Yes. Iron limit exceeded in Jan, March and July.

REMEDIAL ACTIONS: A test system was constructed in 1988 consisting of a gravel berm lined with filter materal with the design goal being a reduction in particulate iron. To correct the elevated levels which have occurred during spring flows the company is presently preparing a report comparing the last two years of operation to assess the success of the system.

COMMENTS: Installation of tertiary treatment system completed in third quarter. 1987. Cyanide monitoring not required after September 1988.

Trout bioassay performed in 1988 showed effluent was not acutely lethal to the test fish.

08/01/89

000170-00-0(4)   FALCONBRIDGE LTD., FALCONBRIDGE   FALCONBRIDGE   REPORT DATE: 04 JULY 89

CONTROL POINT: 0300 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	20558	24874	30541	93183	36523	16696	841	2715	17000	63848	31203	31644	30802	
M3 /DAY (FTFLOW)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	0	0	0	0.045	0	0	0	0	0				0.005	
KG /DAY (CCNAUR)	REQUIREMENT	41.1	49.7	61.1	186	73	33.4	1.68	5.43	34				53.9	0
COPPER UNF.TOT.	ACTUAL	0	0.25	1.53	6.73	2.44	0.52	0.02	0.05	0.34	0	0.94	0.63	1.12	
KG /DAY (CUUT)	REQUIREMENT	20.6	24.9	30.5	93.2	36.5	16.7	0.84	2.72	17	63.8	31.2	31.6	32.1	0
IRON UNF.TOT.	ACTUAL	25.08	21.89	36.04	80.81	32.9	11.88	2.22	1.38	11.39	12.77	6.24	6.33	20.7	
KG /DAY (FEUT)	REQUIREMENT	20.6	24.9	30.5	93.2	36.5	16.7	0.84	2.72	17	63.8	31.2	31.6	30.8	3
NICKEL UNF.TOT.	ACTUAL	8.63	9.45	23.52	73.94	14.94	4.53	0.18	0.84	7.14	33.84	24.34	19.94	18.4	
KG /DAY (NIUT)	REQUIREMENT	20.6	24.9	30.5	93.2	36.5	16.7	0.84	2.72	17	63.8	31.2	31.6	30.8	0
LEAD UNF.TOT.	ACTUAL	0.72	0.99	1.53	5.72	1.97	1.21	0.03	0.11	0.68	1.92	1.87	0.95	1.48	
KG /DAY (PBUT)	REQUIREMENT	20.6	24.9	30.5	93.2	36.5	16.7	0	2.72	17	63.8	31.2	31.6	30.7	0
PH	ACTUAL	6.62	6.62	7.09	6.63	7.06	7.52	7.35	6.82	7.52	7.1	6.9	6.99	7.02	
(PH)	REQUIREMENT														0
PHENOLS UNF-REAC	ACTUAL	0		0	0.045	0	0	0	0	0	0	0	0	0.004	
KG /DAY (PHNOL)	REQUIREMENT	0.41		0.61	1.86	0.73	0.33	0.016	0.05	0.34	1.27	0.62	0.63	0.63	0
PHOSPHOR UNF.TOT.	ACTUAL	0	0	0	2.8				0	0			0	0.4	
KG /DAY (PPUT)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL	84.29	133.08	218.67	526.46	371.12	64.73	7.32	9.56	59.5	121.95	21.84	28.48	137.25	
KG /DAY (RSP)	REQUIREMENT	308	273	458	1398	548	250	12	40.7	255	960	468	475	462	0
SULPHATE UNF.REAC	ACTUAL	9024.96	11267.9	13071.5	21272.8	10443.3	5873.34	306.97	1243.47	7871	27837.7	12262.7	13448.7	11160.36	
KG /DAY (SSO4UR)	REQUIREMENT														
ZINC UNF.TOT.	ACTUAL	0.27	0.5	1.53	2.54	0.69	1.01	0.01	0.05	0.34	0.83	0.94	0.63	0.778	
KG /DAY (ZNUT)	REQUIREMENT	20.6	24.9	30.5	93.2	36.5	16.7	0.84	2.72	17	63.8	31.2	31.6	30.8	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 117, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Falconbridge Ltd., Kidd Creek Mine Division Metallurgical Site Timmins	IMIS NO.: 0000990002
MOE REGION:	Northeast	DISTRICT: Timmins
INDUSTRIAL SECTOR:	Metal Mining, Smelting, Refining	SIC CODE: 0594, 0591, 295
RECEIVING WATERBODY:	DIRECT: man-made ditch INDIRECT: Porcupine River	

DESCRIPTION OF ACTIVITY: Crushed ore is concentrated, smelted and refined into zinc, copper and gold. Sulphuric acid is made from SO2.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of nickel, copper, zinc etc.

EFFLUENT TREATMENT: Effluent is limed and overflow (decant) is discharged.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa, 1977 (Federal)

EXCEEDANCES: Zinc (4)

REMEDIAL ACTIONS: None

COMMENTS: Exceedances due to run-off. Effluent is normally in compliance with Federal guidelines. A study of the receiver will be carried out in 1989. In a report received by the Ministry from the company examining causes of "unreactive" lime, it was pointed out that August and December lime was lacking in reactivity, due mainly to a presence of postlandite $Ca(OH)_2$ in the material. Zinc concentrations for the month of August averaged 5.6 mg/L, with a total lime consumption of 454 tonnes. During the same period in 1987, the zinc concentration of the final effluent averaged less than 0.2 mg/L with a total lime consumption of 355 tonnes.

In 1988, three trout bioassays indicated the final effluent to have been non-acutely lethal to the test fish.

08/02/89

000099-00-0(2) KIDD CREEK MINES LTD. TIMMINS REPORT DATE: 07 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL				0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.09	
MG/L (ASUT)	GUIDELINE				0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
COPPER FIL.TOT.	ACTUAL				0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
MG/L (CUFT)	GUIDELINE				0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
IRON FIL.TOT.	ACTUAL				0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
MG/L (FEFT)	GUIDELINE				S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
MERCURY UNF.TOT.	ACTUAL				0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
MG/L (HGUT)	GUIDELINE				0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0
NH3-N FIL.REAC	ACTUAL	2.3	2.2	3	2.7	1.8	0.9	1.1	2	1.1	1.3	2.1	3.1	1.97	
MG/L (NNH3FR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
LEAD FIL.TOT.	ACTUAL				0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
MG/L (PBFT)	GUIDELINE				0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
PH	ACTUAL	9.4	9.8	9.5	9	8.3	8.8	8.5	7.8	8.1		9.3	10.3	8.98	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL				11	10	10	10	9	10	10	10	11	10.1	
MG/L (RSP)	GUIDELINE				15	15	15	15	15	15	15	15	15	15	0
RESIDUE TOTAL	ACTUAL	2054	2120	2173	1502	1910	2642	2936	2626	2517	2572	2165	2210	2286	
MG/L (RST)	GUIDELINE														
SULPHATE FIL.REAC	ACTUAL	861	1131	1175	9.68	1449	1881	2016	1841	1772	1766	1452	1483	1403	
MG/L (SSO4FR)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.5		0.7	0.7	1.8	0.1	0.3	5.6	0.8	0.2		0.2	1.09	
MG/L (ZNUT)	GUIDELINE	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	4

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 6.00 -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 50, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Falconbridge Ltd., Kidd Creek Mine Division
Mine Site
Timmins

IMIS NO.: 0000990101

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0594, 0591, 295

RECEIVING WATERBODY: DIRECT: Kidd Creek
INDIRECT: Moose R.

DESCRIPTION OF ACTIVITY: Mine site ore is crushed for further processing at the metallurgy site.

EFFLUENT CHARACTERISTICS: Tailings effluent contains dissolved metal salts of nickel, copper, zinc etc..

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa, 1977 (Federal)

EXCEEDANCES: Zinc (3)

REMEDIAL ACTIONS: Company exceeded suspended solids and zinc discharge criteria in spring due to hydraulic loading. Study presently underway to examine options for increasing settling pond retention time. Application for Certificate of Approval anticipated in early 1990.

COMMENTS: A study of the receiver (Jocko Creek) was carried in 1988. Results of the study indicated the company was impacting upon the receiver. The company is presently considering improvements to their treatment system.

One trout bioassay in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

08/02/89

000099-01-0(1) KIDD CREEK MINES LTD. TIMMINS REPORT DATE: 07 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
IRON FIL.TOT.	ACTUAL											0.23		0.23	
MG/L (FEFT)	GUIDELINE														
MERCURY UNF.TOT.	ACTUAL									0.001	0.001			0.001	
MG/L (HGUT)	GUIDELINE									0.001	0.001			0.001	0
NH3-N FIL.REAC	ACTUAL	4.7	6.8	9.1	1.05	1.18	1.1	1	1.3	1.89	1.1	1.2	2.3	2.73	
MG/L (NNH3FR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
LEAD FIL.TOT.	ACTUAL			0.1										0.1	
MG/L (PBFT)	GUIDELINE			0.2										0.2	0
PH	ACTUAL	10.3	10.4	9.7	9.715	10.965	11.07	10	10.45	9.43	9.8	9.7	10.3	10.2	
(PH)	GUIDELINE														
RESIDUE TOTAL	ACTUAL	658	821	946	342.5	351.5	547	584	619		381	282	481	547	
MG/L (RST)	GUIDELINE														
SULPHATE FIL.REAC	ACTUAL	234	344	377	131	89.615	166	263	273	140	117	104	175	201	
MG/L (SSO4FR)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL				1.76	1.065						0.89	0.5	1.05	
MG/L (ZNUT)	GUIDELINE				0.5	0.5						0.5	0.5	0.5	3

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 6.00 -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Falconbridge Ltd. - Lockerby Mine
& PLANT LOCATION: Sudbury West

IMIS NO.: 0001700202

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Vermillion River to Spanish River
INDIRECT: 125 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Mine water treated by ponds.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Iron exceeded MOE guideline for month of March.

REMEDIAL ACTIONS:

COMMENTS:

08/01/89

000170-02-0(2)   FALCONBRIDGE LTD. SUDBURY OPERATIONS   LOCKERBY   REPORT DATE: 04 JULY 89
CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	107	107	107	107	107	107	107	107	107	107	107	107	107	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0	0	0	0	0.001	0.003	0	0.001	0.002	0.001	0.001	0.001	0.0008	
KG /DAY (CUUT)	GUIDELINE	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0
IRON UNF.TOT.	ACTUAL	0.02	0.07	0.18	0.01	0.01	0.01	0	0	0.01	0.01	0.02	0.03	0.03	
KG /DAY (FEUT)	GUIDELINE	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	1
NICKEL UNF.TOT.	ACTUAL	0.01	0.02	0.03	0.02	0.01	0.01	0	0	0.01	0.002	0.02	0.02	0.013	
KG /DAY (NIUT)	GUIDELINE	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0
PH	ACTUAL	9.38	7.9	7.1	9.28	7.84	7.5	8.3	7	8.6	9.3	7.3	8.2	8.14	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	0.26	0	1.07	0.54	0.28	0.86		0.26	0.11	0.15	0.32	0.47	0.393	
KG /DAY (RSP)	GUIDELINE	1.61	1.61	1.61	1.61	1.61	1.61		1.61	1.61	1.61	1.61	1.61	1.61	0
SULPHATE UNF.REAC	ACTUAL	34.35	29.43	22.58	26.54	29.91	32.64	39.48	36.38	42.48	38.73	26.2	30.82	32.46	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 59, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Falconbridge Ltd.
& PLANT LOCATION: Moose Lake Wastewater Treatment System
IMIS NO.: 0001700301

MOE REGION: Northeast
DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Moose Lk. to Onaping R. to Vermillion R. to Spanish R.
INDIRECT: 125 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Extraction from ore into Nickel and Copper concentrates which are shipped to the smelter.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with limestone slurry prior to discharge.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): The nickel limit is set by the Certificate of Approval at 10,724 kg/year.

MOE OR FEDERAL GUIDELINES: Federal Guidelines will be imposed by new C. of A, to be issued in 1989.

EXCEEDANCES: Falconbridge discharged over 41,000 kg of nickel at this point in 1988. Iron exceeded MOE guideline for Jan to April.

REMEDIAL ACTIONS: Treatment facilities to be upgraded in 1989, to meet requirements of new C. of A. Lime treatment (instead of limestone) will be performed as a result of the changes.

COMMENTS:

08/01/89

000170-03-0(1) FALCONBRIDGE LTD., MOOSE LK WWTS ONAPING FALLS REPORT DATE: 04 JULY 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	23780	23780	20682	95565	53201	40643	130	47725	40565	49039	80683	67516	45276	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.48	0	0	5.73	5.05	2.85	0.02	1.43	2.84	3.92	5.65	18.23	3.85	
KG /DAY (CUUT)	GUIDELINE	23.8	23.8	20.7	95.6	53.2	40.6	0.13	47.7	40.6	49	80.7	67	45.2	0
IRON UNF.TOT.	ACTUAL	66.58	90.36	86.24	298.16	27.93	26.01	0.04	13.36	17.85	11.28	44.38	182.97	72.1	
KG /DAY (FEUT)	GUIDELINE	23.8	23.8	20.7	95.6	53.2	40.6	0.13	47.7	40.6	49	80.7	67	45.2	4
NICKEL UNF.TOT.	ACTUAL	52.32	55.4	48.19	202.2	148.32	107.75	0.38	115.54	110.37	127.01	204.93	205.25	115	
KG /DAY (NIUT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	
PH	ACTUAL	6.78	6.85	7.03	6.36	7.04	6.66	5.79	6.76	7.21	7.34	6.67	6.04	6.71	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	95.12	204.51		993.87	117.04	162.57	0.52	133.63	97.36	29.42	177.5	297.07	209.8	
KG /DAY (RSP)	GUIDELINE	357	357		1433	798	610	1.95	716	608	736	1210	67	627	0
SULPHATE UNF.REAC	ACTUAL	15956.3	17002.7	14973.8	52273.9	16678.4	16744.9	57.2	23433	22838	27462	39293	43750	24205	
KG /DAY (SSO4UR)	GUIDELINE	-	-	-	-	-	-	-	-	-	-	-	-		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Falconbridge Ltd. - Onaping Mine
& PLANT LOCATION: Onaping Falls
IMIS NO.: 0001700103

MOE REGION: Northeast
DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Onaping River to Vermillion River to Spanish River
INDIRECT: 125 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with sodium hydroxide.

DISCHARGE TYPE: Continuous from treatment system except for August. Mine shutdown.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: 'Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981'

EXCEEDANCES: pH level exceeded MOE guidelines in July and September. Nickel exceeded guideline for January and April. Suspended solids exceeded guideline for March.

REMEDIAL ACTIONS: Test work at Onaping Pond involving use of flocculants proved unsuccessfull. Falconbridge has extended the curtain in the Pond in 1988, and has undertaken more extensive monitoring of the influent to the pond.

COMMENTS:

08/01/89

000170-01-0(3) FALCONBRIDGE LTD., ONAPING MINE ONAPING FALLS REPORT DATE: 04 JULY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	475	393	688	1663.11	524.03	502.86	214.21	459.3	630.31	1158.72	1527	1034	772	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.01	0	0	0.1	0.01	0.04	0	0	0.01	0.01	0.02	0.01	0.02	
KG /DAY (CUUT)	GUIDELINE	0.475	0.393	0.688	1.66	0.524	0.503	0.214	0.459	0.63	1.16	1.53	0.68	0.86	0
IRON UNF.TOT.	ACTUAL	0.04	0.05	0.08	0.36	0.02	0.04	0.01	0.03	0.12	0.16	0.05	0.06	0.085	
KG /DAY (FEUT)	GUIDELINE	0.475	0.393	0.688	1.66	0.524	0.503	0.214	0.459	0.63	1.16	1.53	1.03	0.773	0
NICKEL UNF.TOT.	ACTUAL	0.54	0.14	0.32	2.32	0.04	0.05	0.02	0.11	0.05	0.2	0.43	0.13	0.362	
KG /DAY (NIUT)	GUIDELINE	0.475	0.393	0.688	1.66	0.524	0.503	0.214	0.459	0.63	1.16	1.53	1.03	0.773	2
PH	ACTUAL	9.59	10.11	10.39	7.95	10.13	10.13	10.97	10.46	10.84	8.16	9.15	9.45	9.55	2
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	4.85	7.86	19.95	19.96	3.14	3.52	0.04	0.11	1.26	8.34	14.66	11.17	7.91	
KG /DAY (RSP)	GUIDELINE	7.13	5.9	10.3	24.9	7.86	7.54	3.21	6.89	9.45	17.4	22.9	15.5	11.6	1
SULPHATE UNF.REAC	ACTUAL	262.68	197.29	364.64	716.8	248.65	275.57	143.52	286.6	423.57	750.85	604.6	440.5	393	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 91% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Fiberglas Canada Inc.
& PLANT LOCATION: Sarnia

IMIS NO.: 0000270306

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3594

RECEIVING WATERBODY: DIRECT: Cole Drain
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: insulation is produced from silicate sands

EFFLUENT CHARACTERISTICS: Contains trace processing agents such as phenols

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Two monthly exceedances for phenol.

REMEDIAL ACTIONS:

COMMENTS:

07/29/89

000027-03-0(6) FIBERGLAS CANADA LTD. SARNIA REPORT DATE: 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5052	4699	5024	4740	5035	5463	4039	6251	4742	5342	5000	5076	5039	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.2	8.2	8.2	8.2	8.4	8.4	8.4	8.3	8.2	8.2	8.1	8.24	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL	0.016	0.04	0.15	0.032	0.008	0.003	0.128	0.014	0.014	0.002	0.002	0.006	0.035	
KG /DAY (PHNOL)	GUIDELINE	0.101	0.094	0.101	0.095	0.101	0.109	0.081	0.125	0.095	0.107	0.1	0.102	0.101	2

NOTE: S/C -SEE COMMENT. O* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Fleet Manufacturing Company Ltd.
& PLANT LOCATION: Gilmore
Fort Erie

IMIS NO.: 0001570001

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metals, Plastic Fabricating and Finishing

SIC CODE: 321

RECEIVING WATERBODY: **DIRECT:** Frenchmans Creek to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Fabricator of aircraft parts

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Wastewater treatment consists of pH adjustment and heavy metal removal to sanitary sewer.

DISCHARGE TYPE:

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None.

REMEDIAL ACTIONS: Company connected process wastewater to municipal sewer system in October 1986.

COMMENTS: Company discharges non-contact cooling water. Monitoring discontinued in September 1988.

07/19/89

000157-00-0(1)   FLEET MFG COMPANY LTD   FORT ERIE   REPORT DATE: 05 AUG 89

SUMMARY FOR EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA   DISCHARGED INTO: 02/004/   LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1030.8	1030.8	1030.8	1030.8	1030.8	1030.8	1030.8	1030.8	1030.8	368.8	1030.8	1030.8	976	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.75	8.1	7.95	7.8	7.4	7.4	7.55	7.55	7.55	7.75	7.95	7.7	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	5	0	0	0	0	0	0	0	0	0	4.9	0	0.825	
KG /DAY (BOD5)	GUIDELINE	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	5.53	15.5	15.5	14.6	0
CHROMIUM UNF.TOT.	ACTUAL	0.02	0.02	0.02	0.1	0.037	0.0501	0.0258	0.0206	0.02	0.02	0.02	0.02	0.031	
KG /DAY (CRUT)	GUIDELINE	0.369	0.369	0.369	1.03	0.369	1.03	0.369	1.03	1.03	0.369	1.03	1.03	0.7	0
LEAD UNF.TOT.	ACTUAL	0.002	0.009	0.009	0.0017	0.0011	0.0037	0.0049	0.007	0.003	0.004	0.002	0.045	0.008	
KG /DAY (PBUT)	GUIDELINE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0
PHOSPHOR UNF.TOT.	ACTUAL	0.02	0.027	0.02	0.011	0.0273	0.0177	0.0206	0.0621	0.01	0.011	0.03	0.011	0.022	
KG /DAY (PPUT)	GUIDELINE	0.369	1.03	0.369	1.03	1.03	1.03	1.03	1.03	0.369	0.369	1.03	1.03	0.81	0
RESIDUE PARTIC.	ACTUAL	2	0	0	0	0	0	0	0	0	0	0	0	0.167	
KG /DAY (RSP)	GUIDELINE	5.53	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	5.53	15.5	15.5	13.8	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Ford Motor Company Niagara Falls	IMIS NO.: 0000020503
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	Industrial Minerals	SIC CODE: 325
RECEIVING WATERBODY:	DIRECT: Welland River to Niagara River INDIRECT:	

DESCRIPTION OF ACTIVITY: Manufacturing automotive glass.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Conventional secondary sewage treatment plant and oil water separation.

DISCHARGE TYPE: continuous (treated sanitary and contact cooling water)

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: Company exceeded total suspended solids for one month in 1988.

REMEDIAL ACTIONS: Minor exceedance of guideline, no action warranted.

COMMENTS: Exceedance was due to process upset/storm condition.

07/19/89

000002-05-0(3)   FORD MOTOR COMPANY   NIAGARA FALLS   REPORT DATE: 05 AUG 89

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/5400 WELLAND R.

INCLUDES CONTROL POINTS: 0100 0400

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2500	2500	2177	2268	3027	3785	5819	5896	4092	3636	4520	4450	3723	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	15.4	6	10.69	12.64	8.5	6	0	0	1.64	12.4	4.52	36.6	9.54	
KG /DAY (BOD5)	GUIDELINE	37.5	37.5	32.7	34	45.4	56.8	87.3	88.4	61.4	54.5	27.1	66.7	52.4	0
IRON UNF.TOT.	ACTUAL	0.23	0	0	0.272	0	0.21	0	0	0	0	0	0	0.059	
KG /DAY (FEUT)	GUIDELINE														
NH4-N FIL.REAC	ACTUAL	0	0	0.043	0.769	0.036	0.18	0	0.07	0	0	0	0.168	0.106	
KG /DAY (NNH4FR)	GUIDELINE	25	25	21.8	22.7	30.3	37.8	58.2	59	40.9	36.4	45.2	44.5	37.2	0
KJELDAHL ORGANIC	ACTUAL	0.09	0.15	0.435	1.082	0.646	0.023	0	0	0.066	0.58	0	0.165	0.27	
KG /DAY (NNKFR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0	0.6	0.156	0.498	0	0	0	0	0	0	0	0	0.105	
KG /DAY (PPUT)	GUIDELINE	2.5	2.5	2.18	2.27	3.03	3.79	5.82	5.9	4.09	3.64	4.52	4.45	3.72	0
RESIDUE PARTIC.	ACTUAL	0	0.32	0	40.06	0	0	0	7.1	0	0	0	26.7	6.18	
KG /DAY (RSP)	GUIDELINE	37.5	37.5	32.7	34	45.4	56.8	87.3	88.4	61.4	54.5	67.8	66.7	55.8	1
SOLVENT EXTRACT.	ACTUAL	3	1.95	1.91	7.92	2.42	0.12	6.29	0.248	0.328	0.145	2.63	9.9	3.07	
KG /DAY (SOLEXT)	GUIDELINE	37.5	37.5	32.7	34	45.4	56.8	87.3	88.4	61.4	54.5	67.8	66.7	55.8	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Ford Motor Company
Oakville

IMIS NO.: 0000020008

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 323

RECEIVING WATERBODY: **DIRECT:** Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Automobile and truck assembly plant

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Primary treatment with settling lagoon.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Yes. Company exceeded objectives for BOD5, phenols and residue particulate.

REMEDIAL ACTIONS: Company upgraded its chemical pretreatment plant and has been discharging to sanitary sewer since October, 11, 1988.

COMMENTS:

07/22/89

000002-00-0(8) FORD MOTOR COMPANY OF CANADA LIMITED OAKVILLE REPORT DATE: 18 SEP 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	12158	12989		13652	15505	16823	14839	16700.1	16400	0			13230	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.1		7	7	7.2	7.25	7.3	7.1	0			6.37	
(PH)	GUIDELINE														1
BOD 5 DAY	ACTUAL	476.9	599.5		480.5	328.8	326.1	170.2	440.1	351.6	0			353	
KG /DAY (BOD5)	GUIDELINE	182	195		205	233	252	223	251	246	0			198	7
CHROMIUM UNF.TOT.	ACTUAL	2.34	4.3		1.37	1.17	0.33	0.61	2.6	1.04	0			1.53	
KG /DAY (CRUT)	GUIDELINE	12.2	13		13.7	15.5	16.8	14.8	16.7	16.4	0			13.2	0
PHENOLS UNF-REAC	ACTUAL	0.96	0.7		1.16	0.83	0.77	1.21	0.79	0.79	0			0.801	
KG /DAY (PHNOL)	GUIDELINE	0.243	0.26		0.273	0.31	0.337	0.297	0.334	0.328	0			0.265	8
PHOSPHOR UNF.TOT.	ACTUAL	10.9	11		11	7.32	12.4	14.65	58.1	12.5	0			15.3	
KG /DAY (PPUT)	GUIDELINE	12.2	13		13.7	15.5	16.8	14.8	16.7	16.4	0			13.2	1
RESIDUE PARTIC.	ACTUAL	260.5	400.2		446.1	466.5	436.2	443.7	408.8	541	0			378	
KG /DAY (RSP)	GUIDELINE	182	195		205	233	252	223	251	246	0			198	8
SOLVENT EXTRACT.	ACTUAL	12.5	11.6		41.2	21.3	16.9	23.3	23.3	24.7	0			19.4	
KG /DAY (SOLEXT)	GUIDELINE	182	195		205	233	252	223	251	246	0			198	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 25 OUT OF 63, FOR A TOTAL COMPLIANCE RECORD OF 60% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Ford Motor Company Ltd.
Assembly Plant
St. Thomas

IMIS NO.: 0000020404

MOE REGION: Southwest

DISTRICT: London

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 323

RECEIVING WATERBODY: DIRECT: Dodd Creek to Kettle Creek
INDIRECT: 38 Km to Lake Erie

DESCRIPTION OF ACTIVITY: Auto painting and assembly.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Domestic - Aerated activated sludge plant Industrial - Chemical batch followed by biological treatment and rapid sand filtration.

DISCHARGE TYPE: Intermittent through an on-shore outfall; weekend flow and pollutants drop off.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Discharge requirement for zinc has been changed to 0.2 mg/L

EXCEEDANCES: Yes. BOD5 once and zinc once.

REMEDIAL ACTIONS: A consultant has been engaged to upgrade the wastewater treatment plant. Plant design will incorporate methods to reduce zinc levels using best availabe technology. Sludge lagoon decommissioning is to begin in 1989 as the first stage of plant upgrading.

COMMENTS: Company has a consultant studing the phosphorus and zinc discharge problems.

08/09/89

000002-04-0(4)   FORD MOTOR COMPANY OF CANADA LIMITED   BOX 2005 ST THOMAS   REPORT DATE: 08 MAY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1890	2016	2375	2130	2669	3093	2078	2916	2863	2672	3212	2510	2535	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	8.6	5.7	27.3	30.3	15.2	22.8	9.3	8.1	8	5.8	9.3	33.6	15.3	
KG /DAY (BOD5)	REQUIREMENT	18.9	20.2	49.8	52.3	26.7	30.9	20.8	29.2	28.6	26.7	32.1	25.1	30.1	1
CHEM. OX DEMAND	ACTUAL	61.8	67.3	233.8	140.1	92.8	119	51	73.1	70.4	59.3	73	67.7	92.4	
KG /DAY (COD)	REQUIREMENT	189	202	497	523	267	309	208	292	286	267	321	251	301	0
CHROMIUM UNF.TOT.	ACTUAL	0.08	0.066	0.19	0.04	0.002	0.002	0.006	0.01	0.01	0.05	0.03	0.07	0.046	
KG /DAY (CRUT)	REQUIREMENT	0.378	0.403	0.995	1.05	0.534	0.619	0.416	0.583	0.573	0.534	0.642	0.502	0.602	0
NH3-N TOTAL	ACTUAL	0.24	0.002	1.194	0.05	0.005	0.08	0.008	0.02	0.05	0.02	0.03	0.05	0.146	
KG /DAY (NNHTFR)	REQUIREMENT	9.45	10.1	24.9	26.1	13.3	15.5	10.4	14.6	14.3	13.4	16.1	12.6	15.1	0
PH	ACTUAL	7.3	7.2	7.7	7.3	7.8	8.1	8.1	8	8	7.9	7.8	7.8	7.75	0
(PH)	REQUIREMENT														
PO4 FIL.REAC	ACTUAL	0.69	0.16	1.09	2.6	1.28	0.8	0.1	1	1.3	0.9	1.3	1	1.02	
KG /DAY (PPO4FR)	REQUIREMENT	1.89	2.02	4.98	5.23	2.67	3.09	2.08	2.92	2.86	2.67	3.21	2.51	3.01	0
RESIDUE PARTIC.	ACTUAL	14.7	4.6	29.8	36	22.9	36.4	10.3	11	12.8	5.3	16	21.5	18.4	
KG /DAY (RSP)	REQUIREMENT	28.4	30.2	74.6	78.4	40	46.4	31.2	43.7	42.9	40.1	48.2	37.7	45.2	0
ZINC UNF.TOT.	ACTUAL	0.17	0.12	1.26	0.5	0.29	0.2	0.08	0.23	0.3	0.3	0.3	0.37	0.344	
KG /DAY (ZNUT)	REQUIREMENT	0.378	0.403	0.995	1.05	0.534	0.619	0.416	0.583	0.573	0.534	0.642	0.502	0.602	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 8.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 93, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ford Motor Co. of Canada Ltd.
& PLANT LOCATION: Windsor

IMIS NO.: 0000020107

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 294, 325

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Engine block and parts are cast in the iron foundry; parts are machined and assembled into engines and transmissions.

EFFLUENT CHARACTERISTICS: Contains iron, phenol and suspended solids.

EFFLUENT TREATMENT: Chemical coagulation, oil removal and sedimentation.

DISCHARGE TYPE: Continuous six days a week through a submerged outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Suspended solids requirement of 15mg/L.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Yes. Exceedances of suspended solids (RSP) and phenols (PHNOL).

REMEDIAL ACTIONS: Upgrading of the wastewater treatment facilities to improve suspended solids removal, per Certificate of Approval No. 4-0055-87-006 issued on July 3, 1987 has been completed and operation began in September 1988. Monthly average suspended solids concentrations have been reduced from over 50 mg/L early in 1988 to less than 20 mg/L at the end of the year and improved operation is expected to bring the effluent in compliance with suspended solids requirement of 15mg/L.

COMMENTS: The question of an appropriate phenol effluent requirement for this discharge has still not been resolved. The Ontario objective of 20 ug/L is not being met. However, this objective is not a legal requirement, but a guideline number. Some in-plant modifications, recirculation, resulted in the average monthly concentrations of phenols in the effluent being reduced from about 600 ug/L in January 1988 to less than 100 ug/L in August although they did increase back to about 300 ug/L at the end of the year.

In 1988, two sample sites were tested for toxicity to rainbow trout.One trout bioassay indicated the process effluent after the clarifier was acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 11.1%. One trout bioassay indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 56.8%.
07/29/89

000002-01-0(7) FORD MOTOR COMPANY OF CANADA, LIMITED WINDSOR REPORT DATE: 01 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	75138	75941	75785	72619	74352	76634	49040	78613	78110	70500	72892	67969	72693	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	1390	1678	1445	1376	1203	1183	662	937	1499	867	1313	1176	1232	
KG /DAY (COD)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	116	106	83	84	67	65	40.2	72	61	38	31	26.1	69.4	
KG /DAY (FEUT)	GUIDELINE	1277	1291	1288	1235	1264	1303	834	1336	1328	1198	1239	1020	1218	0
FLUORIDE UNF.TOT.	ACTUAL	564	600	661	617	600	662	296.8	507	426	391	317	262	513	
KG /DAY (FFIDUT)	GUIDELINE														
PH	ACTUAL	8.06	8	8.1	8.1	8.1	8	8	8	8	7.8	7.9	8.1	8.01	0
(PH)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	45	47.8	44	42	27	23	9.1	6.6	12	26	33	27	28.7	
KG /DAY (PHNOL)	GUIDELINE	1.5	1.52	1.52	1.45	1.49	1.53	0.981	1.57	1.56	1.41	1.46	1.36	145	12
RESIDUE PARTIC.	ACTUAL	4390	4048	4613	3640	2779	2754	1088	1884	1297	1195	1629	1173	2665	
KG /DAY (RSP)	REQUIREMENT	1127	1139	1137	1089	1115	1150	736	1179	1172	1057	1093	1020	1084	12
RESIDUE TOTAL	ACTUAL	22492	24119	20074	19538	17864	18519	10204	17231	16211	15301	17366	16616	18084	
KG /DAY (RST)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	297	334	373	353	235	191	109	167	166	109	79	52	212	
KG /DAY (SOLEXT)	GUIDELINE	1127	1139	1137	1089	1115	1150	736	1179	1172	1057	1093	1020	1084	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 24 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 60% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Fraser Inc.
& PLANT LOCATION: Thorold
IMIS NO.: 0000940007

MOE REGION: West Central
DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper Mill
SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek
INDIRECT: 12 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Fine paper is made from pulp and from deinked ledger paper.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Activated sludge plant on deinking effluent removes organics attributed by ink by biological degradation. Clarifier on total mill effluent removes solids. Some clarified effluent is recycled to the mill.

DISCHARGE TYPE: continuous through an outfall

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): 1978. BOD5 limit concentration of 150 ppm.

MOE OR FEDERAL GUIDELINES: Target loads set by Pulp and Paper Committee consistent with Best Practicable Technology BOD5 loading established by Best Available Technology (BAT) which is consistent with secondary treatment.

EXCEEDANCES: No exceedance of C. of A requirements for BOD5. Company exceeded three of twelve months total suspended solids Pulp and Paper Committee guideline limits.

REMEDIAL ACTIONS: Company submitted a program in 1988 to reduce overflows and conserve water. Program included process modifications an d was completed in 1989. A new certificate of Approval for an effluent detoxification system will be issued in November, 1989 with installation anticipated in December, 1989. Toxicity of effluent was attributed to chlorine used in bleaching operation. The new Certificate of Approval will have loading requirements fdor aboth BOD_5 and suspended solids. Effluent expected to be in compliance with new Certificate of Approval in 1990.

COMMENTS:

In 1988, six trout bioassays indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 0.2% to 28.3%.

07/19/89

000094-00-0(7)   FRASER INCORPORATED   THOROLD   REPORT DATE: 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	25018	25509	22514	21535	23395	21956	24447	24425	21847	22737	23090	20664	23095	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	2787	2859	2493	2266	2464	2490	2520	2855	2917	2565	2474	2517	2601	
KG /DAY (BOD5)	REQUIREMENT	3753	3826	3377	3230	3509	3293	3667	3664	3277	3411	3463	3100	3464	0

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE FILTERED	ACTUAL	10313	10133	8915	9334	9736	9402	9597	3000	8399	7907	8863	7930	8627	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1309	1192	1059	1276	934	644	334	541	1285	682	420	205	823	
KG /DAY (RSP)	GUIDELINE	1251	1275	1126	1077	1170	1098	1222	1276	1092	1137	1154	1033	1159	3

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 88% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Gay Lee Foods Co-op Ltd.
& PLANT LOCATION: Teeswater

IMIS NO.: 0001000009

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 104

RECEIVING WATERBODY: DIRECT: Teeswater R.
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Milk is made into butter and/or dried.

EFFLUENT CHARACTERISTICS: Contains organic compounds such as proteins, sugars etc.

EFFLUENT TREATMENT: Secondary

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE established guidelines.

EXCEEDANCES: Yes. RSP (suspended solids) guideline exceeded on two occasions and slightly exceeded on two occasions.

REMEDIAL ACTIONS: Ministry District staff will be meeting with industry staff to review in detail operating records for exceedance periods for RSP, to determine what action is needed to ensure RSP requirements are consistently met.

COMMENTS: BOD5 of 15 mg/L is the objective considered appropriate by District Office staff because this is the MOE guideline concentration consistent with the level of treatment provided. RSP of 15 mg/L is the objective considered appropriate by District Office staff because this is the MOE guideline concentration consistent with the level of treatment provided. District office staff do not consider it appropriate to establish an objective concentration for NNHTFR because there is insufficient basis to request one at this time. No objective for PPO4FR considered warranted at this time by District. Staff will be working with industry to establish an appropriate objective concentration for PPO4FR which balances level of treatment considered attainable with requirements for protection of the quality of the receiving stream.

07/29/89

000100-00-0(9) GAY LEE FOODS COOPERATIVE LIMITED TEESWATER REPORT DATE: 20 OCT 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	17.5	17.5	17.5	24.5	24.5	24.5	24.5	24.5		24.5	24.5	24.5	22.6	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	2	6	6.4		11.5	9.5	6.77	8	15	9	5.5	9	8.06	
MG/L AS O (BOD5)	REQUIREMENT	15	15	15		15	15	15	15	15	15	15	15	15	0
NH3-N TOTAL	ACTUAL	4.367	1.725	0.68		2.805	2.2	1.03	0.43	0.92	1.05	0.925	1	1.56	
MG/L (NNHTFR)	GUIDELINE	10	10	10		10	10	10	10	10	10	10	10	10	0
PH	ACTUAL	7.51	7.8	7.9		7.178	7.92	7.95	7.99	7.698	7.925	7.848	8.15	7.81	
(PH)	GUIDELINE														0
PO4 FIL.REAC	ACTUAL	3.13	7.375	5.68		7.75	5.25	4.07	6.35	10.275	10.33	12.35	15.85	8.1	
MG/L (PPO4FR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	8.4	15.7	4.92		13.747	7.2	14.4	6.75	171.64		40.35	15.6	29.9	
MG/L (RSP)	REQUIREMENT	15	15	15		15	15	15	15	15		15	15	15	4

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 43 FOR A TOTAL COMPLIANCE OF 91% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: G. E. Plastics Canada Ltd.
(previously reported as Borg-Warner Chemicals)
Cobourg

IMIS NO.: 0000600007

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Organic Chemicals and Synthetic Fibres

SIC CODE: 3731

RECEIVING WATERBODY: **DIRECT:** Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Formulation of ABS resins (plastics).

EFFLUENT CHARACTERISTICS: BOD, suspended solids, phosphorus.

EFFLUENT TREATMENT: Primary and secondary - extended aeration.

DISCHARGE TYPE: continuous through a submerged diffuser

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** #4-003-85-006 July 23, 1985.

BOD5	25 ppm;	54 kg/day
Suspended solids (RSP)	25 ppm;	54 kg/day
Phosphorus (PPUT)	1 ppm;	2.16 kg/day

Average of twelve monthly samples.

EXCEEDANCES: Yes - phosphorus, residue particulate.

REMEDIAL ACTIONS: Company is preparing major plant upgrading and expansion of wastewater treatment facility including effluent filtration.

COMMENTS:

10/01/89

000060-00-0(7) GE PLASTICS CANADA LTD. COBOURG REPORT DATE: 18 SEP 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1643.48	1598.08	1575.38	1952.2	1539.06	1952.2	1389.24	1312.06	1884.1	1698	1489	1371	1617	
M3 /DAY (FTFLOW)	GUIDELINE	.													
PH	ACTUAL	7.3	7.4	7.4	7.7	7.4	7.3	7	7.3	7.2	7.25	7.2	7.1	7.3	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	12.82	33.56	95	96	59	60	40.29	22.3	45.21	35.66	31.27	34.28	47.1	
KG /DAY (BOD5)	REQUIREMENT	54	54	54	54	54	54	54	54	54	54	54	54	54	4
CHEM. OX DEMAND	ACTUAL	41.09	277	240	621	168	203	184.7	223.05	308.99	157.91	135.5	98.71	222	
KG /DAY (COD)	GUIDELINE	230	224	221	273	215	273	194	184	264	238	208	192	226	5
K'DAHL N TOTAL	ACTUAL	21.37	51	41	41	22	24	12.5	6.38	11.7	11.89	12.51	11.93	22.3	
KG /DAY (NNTKUR)	GUIDELINE	82.2	79.9	78.8	97.6	77	97.6	69.5	65.6	94.2	84.9	74.5	68.6	80.8	0
PHOSPHOR UNF.TOT.	ACTUAL	0.92	2.1	3.3	5.1	1.7	1.5	2.5	3.8	3.96	1.7	5.36	1.51	2.79	
KG /DAY (PPUT)	REQUIREMENT	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	6
RESIDUE PARTIC.	ACTUAL	27.94	205	288	435	132	157	113.92	137.77	152.61	112.07	114.65	109.68	165	
KG /DAY (RSP)	REQUIREMENT	54	54	54	54	54	54	54	54	54	54	54	54	54	11

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 26 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 64% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	General Chemical Canada Ltd (formerly: Allied Chemical Canada Inc.) Amherstburg	IMIS NO.: 0000010009
MOE REGION:	Southwest	DISTRICT: Windsor
INDUSTRIAL SECTOR:	Inorganic Chemicals	SIC CODE: 3711
RECEIVING WATERBODY:	DIRECT: Detroit River INDIRECT: Lake Erie	

DESCRIPTION OF ACTIVITY: Soda ash (sodium carbonate) is made from common salt (sodium chloride).

EFFLUENT CHARACTERISTICS: Contains inorganic salts (chlorides, carbonates).

EFFLUENT TREATMENT: By-product recovery and sedimentation.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Company in compliance with current requirements. Total allowable chloride discharges = 2.36×10^8 kilograms per year, with a daily maximum of 1.361×10^6 kilograms per day.

EXCEEDANCES: None

REMEDIAL ACTIONS:

COMMENTS:

07/29/89

000001-00-0(9) GENERAL CHEMICAL CANADA INC. AMHERSTBURG REPORT DATE: 08 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	13638	12450									16683	16437	14802	
M3 /DAY (FTFLOW)	REQUIREMENT														
CHLORIDE UNF.REAC	ACTUAL	568001	474001									763001	796001.6		
KG /DAY (CLIDUR)	GUIDELINE														
FLUORIDE UNF.TOT.	ACTUAL	50.7	39									42.3	36.8	42.2	
KG /DAY (FFIDUT)	GUIDELINE	200	200									200	200	200	0
NH3-N TOTAL	ACTUAL	332	218									64	82	174	
KG /DAY (NNHTUR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	157	117									214	140	157	
KG /DAY (RSP)	REQUIREMENT	205	187									250	247	222	0
RESIDUE TOTAL	ACTUAL	981001	805001									1351000	1377000	1000000	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 8, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

000001-00-0(9) GENERAL CHEMICAL CANADA INC. AMHERSTBURG REPORT DATE: 01 AUG 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	103254	104401	114255	112866	131535	144091	158821	147616	116520	113768	94945	77034.01	118258	
M3 /DAY (FTFLOW)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	7191	8162	9052	8975	7491	7209	5028	4710	4009	8586	12507	9086	7667	
KG /DAY (CLIDUR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	939	700	704	1219	1208	2125	1531	949	1143	691	687	283	1015	
KG /DAY (RSP)	REQUIREMENT	1549	1566	1714	1693	1973	2161	2382	2214	1748	1707	1424	1156	1774	0
RESIDUE TOTAL	ACTUAL	21329	19516	18715	19897	15031	18848	11063	11315	8780	15678	22785	20266	16935	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: General Motors of Canada Ltd.
& PLANT LOCATION: St. Catharines

IMIS NO.: 0001630003

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 323

RECEIVING WATERBODY: DIRECT: Welland Canal
INDIRECT: 9.2 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Coke and iron (pigs and scrap) are charged to a cupola to be processed into iron and cast as engine parts.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous for five days a week through an outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: One month exceedance for phenol.

REMEDIAL ACTIONS: Secondary treatment, RBC's installed in 1988.

COMMENTS: Company is commissioning the RBC installation in 1988. This accounts for the one exceedance of phenol guideline.

Two trout bioassays in 1988 indicated the process effluent to have been non-acutely lethal to the test fish. Two trout bioassays in 1988 indicated the weir discharge to have been non-acutely lethal to the test fish.

07/19/89

000163-00-0(3) GENERAL MOTORS OF CANADA LTD. ST CATHARINES REPORT DATE: 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	132327	133453	135901	135642	140056	146930	127430	132401	144199	135874	135423	129748.1	135760	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.9	7.2	7	7.1	7.1	7.8	7.8	7.4	7.7	7.2	6.9	7.1	7.27	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	298	80.071	33.975	237.372	210.083	0	0	0	0	0	0	0	71.6	
KG /DAY (BOD5)	GUIDELINE	1985	2002	2038	2035	2101	2204	1911	1986	2163	2038	1881	1946	2510	0
NH3-N TOTAL	ACTUAL	0	0	0	0	0	0	6.371	0	0	0	0	21.668	2.34	
KG /DAY (NNHTFR)	GUIDELINE														
K'DAHL N TOTAL	ACTUAL	0	0	0	0	7.003	0	50.972	0	173.038	13.587	0	64.874	25.8	
KG /DAY (NNTKFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	3.143	0.1335	2.514	0.1696	0.1401	0.1469	0.1274	0.1324	0.1442	0.1359	0.1354	0.1297	0.588	
KG /DAY (PHNOL)	GUIDELINE	2.65	2.67	2.72	2.71	2.8	2.94	2.55	2.65	2.88	2.72	2.51	2.59	2.7	1
PHOSPHOR UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (PPUT)	GUIDELINE	132	133	136	136	140	147	127	132	144	136	125	130	134.5	0
RESIDUE FILTERED	ACTUAL	860	3282.92	9377.1	746.026	700.275	2321.47	1401.72	2436.2	540.743	1630.47	2674.6	865.023	2236	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	132	533.808	237.825	0	248.598	323.244	31.857	1615.3	288.396	597.841	1794.35	0	483	
KG /DAY (RSP)	GUIDELINE	1985	2002	2038	2035	2101	2204	1911	1986	2163	2038	1881	1946	2510	0
SOLVENT EXTRACT.	ACTUAL	364	0	33.975	0	35.014	29.386	0	66.2	468.644	54.349	169.279	397.934	135	
KG /DAY (SOLEXT)	GUIDELINE	1985	2002	2038	2035	2101	2204	1911	1986	2163	2038	1881	1946	2510	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Giant Yellowknife Mines Ltd. - Pamour Mine
Timmins

IMIS NO.: 0001090109

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: nameless creek
INDIRECT: Porcupine River

DESCRIPTION OF ACTIVITY: Gold is recovered by the Merryl-Crowe process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, lead, nickel.

EFFLUENT TREATMENT: none

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): A Certificate of Approval was issued for the operation in September of 1987 and became effective on May 5, 1988 after an appeal by the company was resolved.. This certificate ensures that effluent discharge must meet required criteria rather than guidelines.

MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981 until May 5, 1988.

EXCEEDANCES: Iron exceedances linked to high suspended solids (RSP) exceedances.

REMEDIAL ACTIONS: The company is modifying their tailings discharge strategy to prevent short circuiting, increase settling time and improve suspended solids removal. No amendment to the Certificate of Approval is required.

COMMENTS: In 1987 a heap leaching facility was constructed at the site in addition to the exisiting operation. The company has undertaken a revision of sampling and analytical techniques.

One trout bioassay in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

08/02/89

000109-01-0(9) GIANT YELLOWKNIFE MINES LTD. PAMOUR MINE TIMMINS REPORT DATE: 07 AUG 89

CONTROL POINT: 0400 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL	0.02			0	0.135	0.033	0.033	0.06	0.053	0.053	0.11	0.106	0.06	
MG/L AS HCN	GUIDELINE	2			2	2	2	2	2	2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL	0.1	0.05	0.023	0.126	0.093	0.098	0.091	0.037	0.038	0.025	0.025	0.069	0.065	
MG/L AS CU	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL	0.53	0.92	1.5	0.61	0.98	1.67	1.73	0.41	0.68	0.838	0.781	0.413	0.922	
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	2
NICKEL UNF.TOT.	ACTUAL	0.12	0.02	0.055	0.16	0.158	0.149	0.143	0.205	0.073	0.049	0.069	0.088	0.107	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
LEAD UNF.TOT.	ACTUAL		0.12	0.043	0.033	0.005	0.005	0.005	0	0.013	0.013	0.019	0	0.023	
MG/L AS PB	GUIDELINE		1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	7.2	7.1	7.3	7	7.6	8.6	8.05	7.3	7.53	7.3	7.35	7.05	7.45	
(PH)	GUIDELINE														0
ZINC UNF.TOT.	ACTUAL	0.17	0.07	0.035	0.043	0.043	0.036	0.024	0.029	0.006	0.013	0.025	0.025	0.043	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 81. FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Giant Yellowknife Mines Ltd. - Schumacher Mine
& PLANT LOCATION: Timmins

IMIS NO.: 0001090000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Swamp
INDIRECT: North Porcupine River

DESCRIPTION OF ACTIVITY: Gold Mining using the Merryl-Crowe process.

EFFLUENT CHARACTERISTICS: Cyanide, copper, zinc and nickel in effluent.

EFFLUENT TREATMENT: None

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (August 9/88) In response to previous unacceptable discharge results the company obtained a Certificate of Approval in September, 1987 to segregate barren bleed and cyanide tails to a tailings area where no discharge would occur. At the time of issuance, the C. of A. incorporated the mining guideline effluent criteria as a requirement.

MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981 until Aug. 9 1988.

EXCEEDANCES: None after C. of A issued. Cyanide and copper guideline exceedances prior to C.of A. requirements.

REMEDIAL ACTIONS:

COMMENTS: The company has combined discharges with the new ERG Resourcess tailings reclamation project. This project has the INCO air/SO_2 treatment system in place.

One trout bioassay in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.
08/02/89

000109-00-0(0)   GIANT YELLOWKNIFE MINES LTD. SCHUMACHER MINE   TIMMINS   REPORT DATE: 07 AUG 89

CONTROL POINT: 0400 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL				5.568	0.546			0.12	0.05	0.035			1.26	
MG/L AS HCN	GUIDELINE				2	2			2	2	2			2	1
COPPER UNF.TOT.	ACTUAL				7.506	10.377			0.6	0.406	0.49			3.88	
MG/L AS CU	GUIDELINE				1	1			1	1	1			1	2
IRON UNF.TOT.	ACTUAL				0.066	0.004			0.15	0.5	0.09			0.162	
MG/L AS FE	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL				0.31	0.412			0.2	0.188	0.19			0.26	
MG/L AS NI	GUIDELINE				1	1			1	1	1			1	0
LEAD UNF.TOT.	ACTUAL				0.052	0			0.05	0.019	0.05			0.034	
MG/L AS PB	GUIDELINE				1	1			1	1	1			1	0
PH	ACTUAL				8.594	8.985			9.2	8.1	7.9			8.56	
(PH)	GUIDELINE														0
ZINC UNF.TOT.	ACTUAL				0.044	0			0.03	0.038	0.025			0.027	
MG/L AS ZN	GUIDELINE				1	1			1	1	1			1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.60 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Golden Shield Resources - Kerr Division
& PLANT LOCATION: Virginiatown

IMIS NO.: 0001350008

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Larder Lake to Larder R.
INDIRECT: Ottawa R.

DESCRIPTION OF ACTIVITY: Gold mining and recovery using a cyanide circuit.

EFFLUENT CHARACTERISTICS: Contains arsenic, cyanide, copper, iron, nickel, dissolved solids and zinc.

EFFLUENT TREATMENT: Tailings, two Barren Ponds.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (October 31, 1988) A conditional Certificate of Approval issued in 1984 (Condition 4) allowed the company until October 31, 1988 to meet the Ministry effluent requirements.

MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981 until October 31, 1988.

EXCEEDANCES: 1 of arsenic, 1 of cyanide, 1 of nickel

REMEDIAL ACTIONS: The company has gone into receivership and the mine and mill have been placed in a care and maintenance mode i.e. shutdown for the time being. Discharge criteria and treatment requirements will be discussed with the new owner if the mine operations are restored.

COMMENTS: A consultant was retained by the company to design and have in operation a treatment system by Oct 31, 1988. The company elected not proceed with the consultants treatment proposal and is attempting to meet effluent requirements through other means including internal process changes.
Two trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 39.3% and 88.2%.

08/02/89

000135-00-0(8)   GOLDEN SHIELD RESOURCES LTD. KERR DIVISION   VIRGINIATOWN   REPORT DATE: 07 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0.45	0.84	0.42	0.67	0.57	0.92	1.1	1.2		0.77	0.9		0.784	
MG/L (ASUT)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	8
CYANIDE AVAIL	ACTUAL	6.8	11.2	10.2	6.7	2.2	1.2	2.2	2.5		2.4	3.2		4.86	
MG/L (CCNAUR)	GUIDELINE	2	2	2	2	2	2	2	2		2	2		2	9
COPPER UNF.TOT.	ACTUAL	0.76	1.1	1	0.75	0.29	0.3	0.24	0.41		1.15	0.75		0.675	
MG/L AS CU	GUIDELINE	1	1	1	1	1	1	1	1		1	1		1	2
IRON UNF.TOT.	ACTUAL	1.45	1.2	1.4	0.58	1.7	1.3	0.9	0.64			0.84		1.11	
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1	1			1		1	5
NICKEL UNF.TOT.	ACTUAL	2.24	2.87	2.86	2.13	1.18	1.46	1.48	1.53		2.4	1.6		1.98	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1		1	1		1	10
PH	ACTUAL	8.89	9.5	9.2	9.1	8.3	8.4	9.2	9.2		9.1	8.6		8.95	
(PH)	GUIDELINE														0
RESIDUE FILTERED	ACTUAL	22	9	7	11	10	11	12	10		10	14		11.6	
MG/L (RSF)	GUIDELINE	15	15	15	15	15	15	15	15		15	15		15	1
ZINC UNF.TOT.	ACTUAL	0.65	0.95	0.93	0.49	0.15	0.15	0.43			0.82	0.44		0.557	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1			1	1		1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 35 OUT OF 59, FOR A TOTAL COMPLIANCE RECORD OF 41% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Haley Industries
& PLANT LOCATION: Haley

IMIS NO.: 0058840000

MOE REGION: Southeast

DISTRICT: Pembroke

INDUSTRIAL SECTOR: Metal Casting

SIC CODE: 296, 298

RECEIVING WATERBODY: DIRECT: McLarens Creek
INDIRECT: Ottawa R.

DESCRIPTION OF ACTIVITY: Produce aluminum and magnesium castings for aircraft industry.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Neutralization, and settling.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-062-86-006 (October 21, 1986) establishes criteria for parameters monitored.

EXCEEDANCES: Yes. Company exceeded all reported parameters.

REMEDIAL ACTIONS: Consultant hired to determine best system to meet C. of A. requirements. Company and Ministry to meet in 1989 to discuss options bring the company into compliance.

COMMENTS: Company initiated monitoring October 1988.

08/02/89

005884-00-0(0) HALEY INDUSTRIES LTD. HALEY REPORT DATE: 08 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL										265.384	265.384	265.384	265	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL										10.4	10.51	9.81	10.2	
(PH)	REQUIREMENT														
SILVER UNF.TOT.	ACTUAL										0.03625	0.146333	0.362	0.182	
KG /DAY (AGUT)	REQUIREMENT										0.000002	0.000002	0.000002	0.000002	3
ALUMINUM UNF.TOT.	ACTUAL										0.376749	0.119	0.417333	0.304	
KG /DAY (ALUT)	REQUIREMENT										0.07	0.07	0.07	0.07	3
BOD 5 DAY	ACTUAL										34.075	29.68	68.3532	44	
KG /DAY (BOD5)	REQUIREMENT										1	1	1	1	3
CHROMIUM UNF.TOT.	ACTUAL										0.06975	0.0114	0.104	0.062	
KG /DAY (CRUT)	REQUIREMENT										0.04	0.04	0.04	0.04	2
COPPER UNF.TOT.	ACTUAL										0.01625	0.002	0.052667	0.024	
KG /DAY (CUUT)	REQUIREMENT										0.002	0.002	0.002	0.002	3
IRON UNF.TOT.	ACTUAL										0.16425	0.069667	0.316	0.183	
KG /DAY (FEUT)	REQUIREMENT										0.06	0.06	0.06	0.06	3
FLUORIDE UNF.TOT.	ACTUAL										5.305	9.89332	3.49833	6.23	
KG /DAY (FFIDUT)	REQUIREMENT										0.4	0.4	0.4	0.4	3
NICKEL UNF.TOT.	ACTUAL										0.01075	0.005067	0.008	0.008	
KG /DAY (NIUT)	REQUIREMENT										0.001	0.001	0.001	0.001	3
NH3-N UNF.REAC	ACTUAL										2.331	1.42333	5.151	2.97	
KG /DAY (NNH3UR)	REQUIREMENT										0.012	0.012	0.012	0.012	3
LEAD UNF.TOT.	ACTUAL										0.02075	0.033067	0.025667	0.026	
KG /DAY (PBUT)	REQUIREMENT										0.003	0.003	0.003	0.003	3

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PH                   ACTUAL
(PH )                REQUIREMENT                      10.4     10.51     9.81      10.2

PHENOLS UNF-REAC     ACTUAL
KG /DAY (PHNOL )     REQUIREMENT                   0.00875    0.0005 0.024267     0.011
                                                     0.008     0.008    0.008     0.008      2
RESIDUE FILTERED     ACTUAL
KG /DAY (RSF )       REQUIREMENT                   550.369   682.019  899.477       711
                                                       645       645      645       645      2
RESIDUE PARTIC.      ACTUAL
KG /DAY (RSP )       REQUIREMENT                   43.0224     29.06  48.1822      40.1
                                                      2.46      2.46     2.46      2.46      3
SOLVENT EXTRACT.     ACTUAL
KG /DAY (SOLEXT)     REQUIREMENT                  0.335249  0.268333    0.657      0.42
                                                      0.84      0.84     0.84      0.84      0
SULPHITE UNF.REAC    ACTUAL
KG /DAY (SSITUR)     REQUIREMENT                   173.245   139.923  253.317       189
                                                      0.12      0.12     0.12      0.12      3
SULPHATE UNF.REAC    ACTUAL
KG /DAY (SSO4UR)     REQUIREMENT                   97.5824    140.71  239.623       159
                                                       152       152      152       152      1
ZINC UNF.TOT.        ACTUAL
KG /DAY (ZNUT )      REQUIREMENT                    0.0795  0.034333 0.103333     0.072
                                                     0.023     0.023    0.023     0.023      3
NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS     -
*****************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS  43 OUT OF  51, FOR A TOTAL COMPLIANCE RECORD OF  16% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	INCO Ltd. Copper Cliff Nickel Refinery	IMIS NO.: 0001690403
MOE REGION:	Northeast	DISTRICT: Sudbury
INDUSTRIAL SECTOR:	Metal Mining, Smelting, Refining	SIC CODE: 295
RECEIVING WATERBODY:	DIRECT: Kelly Lake INDIRECT: 70 km. to Lake Huron (North Channel)	

DESCRIPTION OF ACTIVITY: Various nickel products are made.

EFFLUENT CHARACTERISTICS: Contains dissolved sulphates of nickel and copper.

EFFLUENT TREATMENT: Raw effluent is treated in two ponds with lime to precipate the metals.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

08/01/89

000169-04-0(3) INCO LTD - COPPER CLIFF NICKEL REFINERY COPPER CLIFF REPORT DATE: 04 JULY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1406.9	1396.1	2714	2839.8	2650.5	3054.7	2693.4	1438.2	1562.3	1910.8	2030.4	1.935	1975	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.267	0.112	0.204	0.312	0.716	0.733	0.498	0.547	0.047	0.42	0.233	0.571	0.388	
KG /DAY (CUUT)	GUIDELINE	1.41	1.4	2.71	2.84	2.65	3.05	2.69	1.44	1.56	1.91	2.03	0.002	1.97	0
IRON UNF.TOT.	ACTUAL	0.58	0.32	1.33	0.284	0.292	0.672	0.45	0.647	0.172	0.497	0.339	0.31	0.491	
KG /DAY (FEUT)	GUIDELINE	1.41	1.4	2.71	2.84	2.65	3.05	2.69	1.44	1.56	1.91	2.03	0.002	1.97	0
NICKEL UNF.TOT.	ACTUAL	0.988	0.461	1.303	0.398	0.477	1.039	0.566	1.194	0.281	0.936	0.889	0.929	0.788	
KG /DAY (NIUT)	GUIDELINE	1.41	1.4	2.71	2.84	2.65	3.05	2.69	1.44	1.56	1.91	2.03	0.002	1.97	0
NH3-N TOTAL	ACTUAL	1.67	1.26	1.9	1.7	0.53	0.31	0.54	0.43	0.78	0.46	0.51	0.62	0.892	
KG /DAY (NNHTUR)	GUIDELINE	14.1	14	27.1	28.4	26.5	30.5	26.9	14.4	15.6	19.1	20.3	0.019	19.7	0
PH	ACTUAL	10	10.3	9.9	10.4	10.1	9.6	10	10.1	9.6	9.3	10	10.2	9.96	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	6.9	1.4	5.7	7.4	2.1	5.5	4	9.8	5.6	5.4	3.2	7	5.3	
KG /DAY (RSP)	GUIDELINE	21.1	20.9	40.7	42.6	39.8	45.8	40.4	21.6	23.4	28.7	30.5	0.029	29.6	0
ZINC UNF.TOT.	ACTUAL	0.046	0.14	0.054	0.057	0.027	0.092	0.054	0.086	0.016	0.038	0.022	0.039	0.056	
KG /DAY (ZNUT)	GUIDELINE	1.41	1.4	2.71	2.84	2.65	3.05	2.69	1.44	1.56	1.91	2.03	0.002	1.97	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Copper Cliff Creek Wastewater Treatment Plant

IMIS NO.: 0001690304

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: **DIRECT:** Junction Creek to Vermillion River to Spanish River
INDIRECT: 70 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Smelting and refining of nickel, copper and precious metals.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates and other metals.

EFFLUENT TREATMENT: Neutralization with lime.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** The Certificate of Approval limits are: Iron 0.5 ppm, Nickel 0.5 ppm, Copper 0.2 ppm, Suspended Solids 15 ppm

EXCEEDANCES: The level of iron exceeded the C. of A limits in April, Oct, Nov, and Dec.

REMEDIAL ACTIONS: A new C. of A., which requires a study for plant expansion, has recently been issued. This C. of A. is now under appeal.

COMMENTS:

08/01/89

000169-03-0(4) INCO LTD - COPPER CLIFF CREEK WTP COPPER CLIFF REPORT DATE: 04 JULY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	101251	118301	138501	177101	148300	92200	60300	109601	97600	114601	131000	123301.1	117671.4	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	5.3966	6.0925	12.835	28.823	10.648	3.842	3.091	2.488	4.941	4.713	10.487	3.682	8.09	
KG /DAY (CUUT)	GUIDELINE	20.3	23.7	27.7	35.4	29.7	18.4	12.1	21.9	19.5	22.9	26.2	24.7	23.5	0
IRON UNF.TOT.	ACTUAL	21.794	35.401	26.765	132.825	23.798	17.057	18.15	13.656	29.854	67.127	141.284	69.393	49.8	
KG /DAY (FEUT)	GUIDELINE	50.6	59.2	69.3	88.6	74.2	46.1	30.2	54.8	48.8	57.3	0.001	61.7	53.4	4
NICKEL UNF.TOT.	ACTUAL	33.413	46.137	60.94	70.84	48.939	22.128	14.472	26.304	21.472	38.964	56.33	57.951	41.5	
KG /DAY (NIUT)	GUIDELINE	50.6	59.2	69.3	88.6	74.2	46.1	30.2	54.8	48.8	57.3	0.001	61.7	53.4	0
NH3-N TOTAL	ACTUAL	510.55	564.88	685.58	590.92	645.48	322.7	268.94	460.32	488	587.33	648.45	490.98	512	
KG /DAY (NNHTUR)	GUIDELINE	1012	1183	1385	1771	1483	922	603	1096	976	1146	1310	1233	1177	0
PH	ACTUAL	10.2	10.1	10.2	10.3	10.2	10.2	10.2	10.3	10.3	10.3	10.4	10.3	10.3	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	911.3	1691.7	1177.3	1434.5	741.5	276.6	301.5	657.6	488	802.2	1441	1233	930	
KG /DAY (RSP)	GUIDELINE	1519	1774	2077	2656	2224	1383	904	1644	1464	1719	0.02	1849	1601	0
ZINC UNF.TOT.	ACTUAL	1.602	2.242	2.126	5.127	2.866	1.866	0.458	0.743	2.046	2.518	2.915	2.713	2.27	
KG /DAY (ZNUT)	GUIDELINE	101	118	138	177	148	92.2	60.3	110	97.6	115	0.001	123	107	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 94, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Inco Ltd. Crean Hill Mine
& PLANT LOCATION: Copper Cliff

IMIS NO.: 0001690809

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Unnamed creek to Monk Lake.
INDIRECT: Vermillion River

DESCRIPTION OF ACTIVITY: Mining and primary crushing of ore.

EFFLUENT CHARACTERISTICS: Contains copper, nickel and iron sulphates.

EFFLUENT TREATMENT: Effluent from tailings is neutralized with lime.

DISCHARGE TYPE: Intermittent to become continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: pH exceeded guideline in March.

REMEDIAL ACTIONS:

COMMENTS: Tailings effluent is batch treated with lime. No changes to this system are planned.

08/01/89

000169-08-0(9) INCO LTD - CREAN HILL MINE COPPER CLIFF REPORT DATE: 04 JULY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1223.8	1109.6	8006.6	1052	1069.2	857.2		1166.5	1587.2	1762.4	1927	1927	1972	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.2	0.01	0.16	0.021	0.043	0.034		0.07	0.048	0.088	0.03	0.04	0.068	
KG /DAY (CUUT)	GUIDELINE	1.22	1.11	8.01	1.05	1.07	0.857		1.17	1.59	1.76	1.93	1.93	1.97	0
IRON UNF.TOT.	ACTUAL	0.21	0.1	0.48	0.042	0.043	0.069		0.128	0.095	0.194	0.16	0.35	0.17	
KG /DAY (FEUT)	GUIDELINE	1.22	1.11	8.01	1.05	1.07	0.857		1.17	1.59	1.76	1.93	1.93	1.97	0
NICKEL UNF.TOT.	ACTUAL	0.18	0.11	1.201	0.263	0.171	0.043		0.117	0.143	0.247	0.8	1.06	0.394	
KG /DAY (NIUT)	GUIDELINE	1.22	1.11	8.01	1.05	1.07	0.857		1.17	1.59	1.76	1.93	1.93	1.97	0
NH3-N TOTAL	ACTUAL	1.08	1.89	13.61	0.63	0.64	0.09		0.012	0.32	0.55	1.02	1.54	1.94	
KG /DAY (NNHTUR)	GUIDELINE	12.2	11.1	80.1	10.5	10.7	8.57		11.7	15.9	17.6	19.3	19.3	19.7	0
PH	ACTUAL	9.1	10.1	10.8	10.4	10.1	9.2		7.6	7.8	8.6	9.8	10.1	9.42	
(PH)	GUIDELINE														1
RESIDUE PARTIC.	ACTUAL	0.7	0.7	57.6	1.9	1.5	2.6		2.8	1.6	3.5	3.5	8.1	7.68	
KG /DAY (RSP)	GUIDELINE	18.4	16.6	120	15.8	16	12.9		17.5	23.8	26.4	28.9	28.9	29.6	0
ZINC UNF.TOT.	ACTUAL	0.02	0.02	0.16	0.011	0.021	0.009		0.058	0.048	0.035	0.03	0.03	0.04	
KG /DAY (ZNUT)	GUIDELINE	1.22	1.11	8.01	1.05	1.07	0.857		1.17	1.59	1.76	1.93	1.93	1.97	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 77, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Inco Ltd. Frood Stobie
Emergency Tailings Area
Copper Cliff

IMIS NO.: 0001690205

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY:
DIRECT: Junction Creek
INDIRECT: 77.5 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Mining and concentrating sulphide ores for smelting.

EFFLUENT CHARACTERISTICS: Contains nickel, copper and iron sulphates.

EFFLUENT TREATMENT: Effluent from tailings area is neutralized with lime.

DISCHARGE TYPE: Intermittent

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Copper, iron, pH and nickel exceeded guidelines for all months.

REMEDIAL ACTIONS: The seasonal discharges will be rerouted to the Copper Cliff Treatment system beginning in 1989.

COMMENTS:

08/01/89

000169-02-0(5) INCO LTD - FROOD STOBIE TAILINGS AREA COPPER CLIFF REPORT DATE: 04 JULY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL				383.6	325.4			155.2	159.8	360	80		244	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL				3.03	3.612			0.411	3.44	7.78	0.8		3.18	
KG /DAY (CUUT)	GUIDELINE				0.384	0.325			0.155	0.16	0.36	0.08		0.244	6
IRON UNF.TOT.	ACTUAL				23.016	12.788			0.25	13.26	35.82	10.32		15.9	
KG /DAY (FEUT)	GUIDELINE				0.384	0.325			0.155	0.16	0.36	0.08		0.244	6
NICKEL UNF.TOT.	ACTUAL				6.598	6.475			1.4	3.52	19.94	1.5		6.57	
KG /DAY (NIUT)	GUIDELINE				0.384	0.325			0.155	0.16	0.36	0.08		0.244	6
NH3-N TOTAL	ACTUAL				1.7	0.4			0.02	0.72	0.9	0.5		0.707	
KG /DAY (NNHTUR)	GUIDELINE				3.84	3.25			1.55	1.6	3.6	0.08		2.32	1
PH	ACTUAL				3.8	3.3			3.7	3.4	3.4	3.4		3.5	6
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL				7.1	2.3			0.3	4.5	85	1.2		16.7	
KG /DAY (RSP)	GUIDELINE				5.75	4.88			2.33	2.4	5.4	0.08		3.47	4
ZINC UNF.TOT.	ACTUAL				0.207	0.241			0.06	0.12	0.83	0.06		0.253	
KG /DAY (ZNUT)	GUIDELINE				0.384	0.325			0.155	0.16	0.36	0.08		0.244	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 30 OUT OF 41, FOR A TOTAL COMPLIANCE RECORD OF 26% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Garson Mine

IMIS NO.: 0001690700

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion River
INDIRECT: 86 km. to Lake Huron (North Channel) to Spanish River

DESCRIPTION OF ACTIVITY: Mining and primary crushing of ore.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Effluent from tailings area is neutralized with lime.

DISCHARGE TYPE: Continuous from mine water treatment system

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Nickel exceeded guideline in April, October, Noverber and December. Suspended solids exceeded the guideline in February, March and April.

REMEDIAL ACTIONS:

COMMENTS: The mine is not being operated. C. of A will be re-issued in 1989.

05/02/89

000169-07-0(0) INCO LTD - GARSON MINE COPPER CLIFF REPORT DATE: 10 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1501	1710	1925	1925	2931.7	2711.4	2435.2	2392.5	2297.9	1710.2	898.4	1217	1971	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.027	0.229	0.046	0.27	0.188	0.136	0.067	0.099	0.103	0.154	0.149	0.183	0.138	
KG /DAY (CUUT)	GUIDELINE	1.5	1.71	1.93	1.93	2.93	2.71	2.44	2.39	2.3	1.71	0.898	1.22	1.97	0
IRON UNF.TOT.	ACTUAL	0.051	0.383	0.191	0.308	0.193	0.278	0.134	0.173	0.161	0.165	0.1	0.065	0.184	
KG /DAY (FEUT)	GUIDELINE	1.5	1.71	1.93	1.93	2.93	2.71	2.44	2.39	2.3	1.71	0.898	1.22	1.97	0
NICKEL UNF.TOT.	ACTUAL	1.017	1.476	1.253	3.411	2.046	0.603	0.408	0.844	0.902	3.255	1.918	3.781	1.74	
KG /DAY (NIUT)	GUIDELINE	1.5	1.71	1.93	1.93	2.93	2.71	2.44	2.39	2.3	1.71	0.898	1.22	1.97	4
NH3-N TOTAL	ACTUAL	0.65	0.76	0.87	0.51	1.09	1.42	1.46	1.02	0.8	0.38	0.35	0.25	0.797	
KG /DAY (NNHTUR)	GUIDELINE	15	17.1	19.3	19.3	29.3	27.1	24.4	23.9	23	17.1	8.98	12.2	19.7	0
PH	ACTUAL	9.1	9.8	10.2	9.2	9.4	10	9.6	9.3	9.9	8.8	8.6	9.3	9.43	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	6.5	40.8	50.6	48.7	23.6	3.9	3.1	24.4	6.7	5.6	4.5	13.1	19.3	
KG /DAY (RSP)	GUIDELINE	22.5	25.7	28.9	28.9	44	40.7	36.5	35.9	34.5	25.7	13.5	18.3	29.6	3
ZINC UNF.TOT.	ACTUAL	0.013	0.036	0.067	0.127	0.064	0.075	0.027	0.042	0.046	0.08	0.062	0.097	0.061	
KG /DAY (ZNUT)	GUIDELINE	1.5	1.71	1.93	1.93	2.93	2.71	2.44	2.39	2.3	1.71	0.898	1.22	1.97	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Inco Ltd. Levack Tailings Area	IMIS NO.: 0001690106
MOE REGION:	Northeast	DISTRICT: Sudbury
INDUSTRIAL SECTOR:	Metal Mining, Smelting, Refining	SIC CODE: 0592
RECEIVING WATERBODY:	DIRECT: Onaping R. INDIRECT: 113 km to Lake Huron	

DESCRIPTION OF ACTIVITY: Mining and crushing operations.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Effluent from tailings is limed prior to discharge.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Iron exceeded guideline in October, pH exceeded guideline in November.

REMEDIAL ACTIONS: An automatic lime addition system with continuous pH monitoring was installed in November.

COMMENTS:

08/01/89

000169-01-0(6)   INCO LTD   LEVACK TAILINGS AREA   COPPER CLIFF   REPORT DATE: 04 JULY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL			4843	3179.2	5967	464.3	382.9	382.9	857.6	1137	2534		2194	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL			0.194	0.191	0.656	0.033	0.015	0.025	0.017	0.091	0.071		0.144	
KG /DAY (CUUT)	GUIDELINE			4.84	3.18	5.97	0.464	0.383	0.383	0.858	1.14	2.53		2.19	0
IRON UNF.TOT.	ACTUAL			0.605	1.494	3.163	0.028	0.027	0.023	0.069	2.342	0.289		0.893	
KG /DAY (FEUT)	GUIDELINE			4.84	3.18	5.97	0.464	0.383	0.383	0.858	1.14	2.53		2.19	1
NICKEL UNF.TOT.	ACTUAL			0.339	0.509	1.372	0.07	0.054	0.042	0.026	0.898	0.085		0.377	
KG /DAY (NIUT)	GUIDELINE			4.843	3.179	5.967	0.464	0.383	0.383	0.858	1.137	2.534		2.19	0
NH3-N TOTAL	ACTUAL			20.8	4.5	6.2	0.5	0.3	0.3	0.9	2.6	6.1		4.69	
KG /DAY (NNHTUR)	GUIDELINE			48.4	31.8	59.7	4.64	3.83	3.83	8.58	11.4	25.3		21.9	0
PH	ACTUAL			10.5	10.2	9	9.7	8.7	9.9	10.3	7	11.5		9.64	
(PH)	GUIDELINE														1
RESIDUE PARTIC.	ACTUAL			29.1	26.1	37	0.8	0.2	0.8	4.8	9.1	28.4		15.1	
KG /DAY (RSP)	GUIDELINE			72.6	47.7	89.5	6.96	5.74	5.74	12.9	17.1	38		32.9	0
ZINC UNF.TOT.	ACTUAL			0.048	0.064	0.06	0.009	0.002	0.008	0.009	0.023	0.021		0.027	
KG /DAY (ZNUT)	GUIDELINE			4.84	3.18	5.97	0.464	0.383	0.383	0.858	1.14	2.53		2.19	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 63, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	INCO Ltd. Nolin Creek Wastewater Treatment Plant	IMIS NO.: 0001690601
MOE REGION:	Northeast	DISTRICT: Sudbury
INDUSTRIAL SECTOR:	Metal Mining, Smelting, Refining	SIC CODE: 0592
RECEIVING WATERBODY:	DIRECT: Nolin Creek to Junction Creek to Vermillion River to Spanish River INDIRECT: 77 km. to Lake Huron (North Channel)	

DESCRIPTION OF ACTIVITY: Metallurgical complex that smelts and refines nickel, copper and associated metals from concentrates.

EFFLUENT CHARACTERISTICS: Contains a variety of dissolved metal salts.

EFFLUENT TREATMENT: Neutralized by addition of lime.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): The Certificate of Approval limits; iron - 0.5 ppm, nickel - 0.5 ppm, copper 0.2 ppm, suspended solids 15 ppm. The original design information which was the basis for the Certificate of Approval limits is being reviewed.

EXCEEDANCES: Copper exceeded C. of A. in April and October. Iron exceeded C. of A in February, October and December.

REMEDIAL ACTIONS: A Certificate of Approval with specifications requiring a study to address the present bypassing situation and assess the need for treatment facility has been issued to the company. The company launched an appeal which is still being processed.

COMMENTS:

08/01/89

000169-06-0(1) INCO LTD - NOLIN CREEK WASTEWATER TREATMENT PLANT COPPER CLIFF REPORT DATE: 04 JULY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6700	7030	12330	27470	12470	3050	2290	9030	11430	17880	24220	8480	11865	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	1.239	0.791	0.564	7.183	1.635	0.193	0.108	0.449	1.264	3.741	3.784	1.289	1.85	
KG /DAY (CUUT)	REQUIREMENT	1.34	1.41	2.47	5.49	2.49	0.61	0.458	1.81	2.29	3.56	4.84	1.7	2.37	2
IRON UNF.TOT.	ACTUAL	3.018	6.155	3.973	11.901	3.847	0.6	0.173	1.575	5.581	17.272	10.209	7.435	5.97	
KG /DAY (FEUT)	REQUIREMENT	3.35	3.52	6.17	13.7	6.24	1.53	1.15	4.52	5.72	8.94	12.1	4.24	5.93	3
NICKEL UNF.TOT.	ACTUAL	1.876	2.32	3.329	10.988	3.866	0.549	0.275	2.348	4.001	9.119	8.477	2.459	4.133	
KG /DAY (NIUT)	REQUIREMENT	3.35	3.52	6.17	13.7	6.24	1.53	1.15	4.52	5.72	8.94	12.1	4.24	5.93	0
NH3-N TOTAL	ACTUAL	23.55	25.31	41.61	27.2	43.05	8.46	13.19	30.48	26.75	25.03	24.22	21.56	25.9	
KG /DAY (NNHTUR)	GUIDELINE	67	70.3	123	275	125	30.5	22.9	90.3	114	179	242	84.8	119	0
PH	ACTUAL	10.6	10.4	10.5	10.4	10.5	10.4	10.5	10.5	10.5	10.4	10.5	10.4	10.5	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	61	72.9	77.2	158.5	74.8	9.2	6.9	63.2	57.2	160.9	218	84.8	87	
KG /DAY (RSP)	REQUIREMENT	100	105	185	412	187	45.8	34.4	135	171	268	363	127	178	0
ZINC UNF.TOT.	ACTUAL	0.037	0.118	0.086	0.472	0.101	0.065	0.006	0.087	0.183	0.346	0.29	0.161	0.163	
KG /DAY (ZNUT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: INCO Metals Ltd.
& PLANT LOCATION: Port Colborne
IMIS NO.: 0001600105

MOE REGION: West Central
DISTRICT: Welland

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Electrolytic processes are used to recover pure metals like nickel, copper, silver, gold, etc.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Filtration plant.

DISCHARGE TYPE: open outfall

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL : Yes.

EXCEEDANCES: None.

REMEDIAL ACTIONS: Company in compliance with C. of A.

COMMENTS:

07/19/89

000160-01-0(5)   INCO LIMITED
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	18900	14800	16700	14300	14300	14100	8100	15100	13800	13500	13100	10500	13933	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.5	10.9	10.8	10.6	10.5	10.4	9.9	10.6	10.6	10.3	10.9	10.4	10.6	
(PH)	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL	3.8	5.1	4.1	2.9	2.7	1.8	0.7	2.2	1.9	2.1	2.6	1.6	2.63	
KG /DAY (NIUT)	REQUIREMENT	18.9	14.8	16.7	14.3	14.3	14.1	8.1	15.1	13.8	13.5	13.1	10.5	13.9	0
RESIDUE PARTIC.	ACTUAL	71.5	79.9	81	37.5	33.5	21.6	7.6	18.3	21	27.1	60.5	38.7	41.5	
KG /DAY (RSP)	REQUIREMENT	283	222	250	214	214	211	121	226	207	202	196	157	209	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	International Minerals and Chemicals Dunnville	IMIS NO.: 0001500008
MOE REGION:	West Central	DISTRICT: Haldimand-Norfolk/Brant
INDUSTRIAL SECTOR:	Industrial Minerals	SIC CODE: 372
RECEIVING WATERBODY:	DIRECT: Grand River INDIRECT: 3 km to Lake Erie	

DESCRIPTION OF ACTIVITY: Phosphate ore, sulphuric acid and phosphoric acid were used to make fertilizer in the past. Manufacturing activities now ceased.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Lime precipitation.

DISCHARGE TYPE: continuous at shoreline

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): MOE guidelines.

EXCEEDANCES: None

REMEDIAL ACTIONS:

COMMENTS: Since plant shut down, phosphorus loadings have continued to decline. WWTP continues to operate to treat phosphorus in storm runnoff. Company is preparing decommissioning plan for closure of gypsum ponds.

07/22/89

000150-00-0(8)   INTERNATIONAL MINERALS AND CHEMICAL CORPORATION   DUNNVILLE   REPORT DATE: 10 MAY 89

CONTROL POINT: 0300 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2485.9	0	2334	3110	3.452	3885	3801	3185	2671	2964			2444	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.4		9.13	9.23	9.21	9.07	8.94	9.1	9.1	9.22			8.24	0
(PH)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	1.9	0	1.91	1.91	1.9	1.59	1.35						1.51	
KG /DAY (PPUT)	REQUIREMENT	4.54	4.54	4.54	4.54	4.54	4.54	4.54						4.54	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 17, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: James River-Marathon, Ltd.
& PLANT LOCATION: Marathon

IMIS NO.: 0000850008

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Kraft Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior
INDIRECT:

DESCRIPTION OF ACTIVITY: Pulp is produced from chips (both hardwood and softwood) by the kraft pulping process. The pulp is bleached. Crude tall oil is removed and sold.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibres) and many organic (some chlorinated) compounds.

EFFLUENT TREATMENT: Primary clarifier on high-solids wastewaters and foam barrier remove solids. The woodroom (hardwood debarking) is dry.

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (April 25, 1984) Existing Control Order requires stepwise reductions in Total Suspended Solids and Biochemical Oxygen Demand as follows: BOD to 35 kg/ADMT by Dec. 31, 1986 and 30 kg/ADMT by Dec.31, 1989 and TSS to 6,000 kg/day by Dec. 31, 1985 and 4,000 kg/day by June 30, 1988 all averaged over 30 consectutive working days.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

In 1988, six trout bioassays indicated the final effluent to have been acutely lethal to the test fish.

07/31/89

000085-00-0(8) JAMES RIVER MARATHON LTD. MARATHON REPORT DATE: 26 JUNE 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	60400	58740	62310	61600	60552	62524	70003	65580	61020	59900	60278	57070	61665	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	12550	12630	14270	14600	15500	14510	13510	14030	11600	13820	13920	13590	13711	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	2480	2170	2180	1660	1880	1440	1750	1640	2260	1860	1990	2230	1962	
KG /DAY (RSP)	REQUIREMENT	6000	6000	6000	6000	6000	4000	4000	4000	4000	4000	4000	4000	4833	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: J. M. Schneider Inc.
& PLANT LOCATION: Ayr

IMIS NO.: 0001440007

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1011, 1012

RECEIVING WATERBODY: DIRECT: Nith River to Grand River
INDIRECT: 196 km to Lake Erie

DESCRIPTION OF ACTIVITY: Beef and pork is packaged and poultry is deep fried and packaged for retail sales.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and phosphorus.

EFFLUENT TREATMENT: Grease skimming, flow equalization, dissolved air flotation, aeration, sedimentation and chlorination.

DISCHARGE TYPE: seven day continuous flow through a submerged outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Monthly requirements are those of Certificate of Approval, revised in November 1986.

EXCEEDANCES: None, company is in compliance.

REMEDIAL ACTIONS: None.

COMMENTS:

07/22/89

000144-00-0(7) J.M.SCHNEIDER INC AYR REPORT DATE: 10 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	51.25	61.09	75.87	73.56	56.52	83.67	71.31	65.85	67.31	62.25	65.71	67.99	66.9	
M3 /DAY (FTFLOW)	GUIDELINE	363	363	363	363	363	363	363	363	363	363	363	363	363	0
BOD 5 DAY	ACTUAL	0.65	0.74	2.03	0.735	0.57	1.13	0.71	0.66	0.67	0.36	0.99	0.34	0.799	
KG /DAY (BOD5)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	0
NH3-N TOTAL	ACTUAL	0.1	0.01	0.67	0.02	0.2	1.29	0	0	0.04	0.01	0.29	1.31	0.328	
KG /DAY (NNHTFR)	REQUIREMENT	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	0
K'DAHL N TOTAL	ACTUAL	0.14	0.06	0.97	0.06	0.27	1.38	0.06	0.04	0.08	0.11	0.15	2.4	0.477	
KG /DAY (NNTKUR)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	0
PH	ACTUAL	7.59	6.88	6.33	7.13	6.57	7.04	7.45	6.97	7.72	7.49	7.34	7.12	7.14	0
(PH)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	0.05	0.01	0.03	0.03	0.01	0.02	0.16	0.04	0.04	0.13	0.02	0.02	0.047	
KG /DAY (PPUT)	REQUIREMENT	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0
RESIDUE PARTIC.	ACTUAL	0.88	0.8	2.06	0.31	0.54	1.21	0.34	0.18	0.44	0.58	0.45	0.73	0.71	
KG /DAY (RSP)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	0
SOLVENT EXTRACT.	ACTUAL	0.25	0.07	0.15	0.16	0.24	0.28	0.5	0.4	0.23	0.42	0.59	0.14	0.286	
KG /DAY (SOLEXT)	REQUIREMENT	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 96, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Kimberly-Clark of Canada
& PLANT LOCATION: Huntsville

IMIS NO.: 0000830109

MOE REGION: Central

DISTRICT: Barrie

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Muskoka R.
INDIRECT:

DESCRIPTION OF ACTIVITY: Converts pulp into personal paper products

EFFLUENT CHARACTERISTICS: Practically zero effluent

EFFLUENT TREATMENT: Conventional and tertiary

DISCHARGE TYPE: Intermittent

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): RSF and PPUT Requirement set by Certificate of Approval.
MOE OR FEDERAL GUIDELINES: COD is industry wide guideline.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Direct discharge seasonal, approximately 6 months out of the year. Alternate disposal is land spraying. During June, July and August the company sprayed on approved area - no discharge.

One trout bioassay in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

07/22/89

000083-01-0(9)   KIMBERLY-CLARK OF CANADA LIMITED HUNTSVILLE MILL   HUNTSVILLE   REPORT DATE: 18 SEP 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	938	1208	933	317	241	0	0	4	0	26	957	874	458	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	45	82	67	30	19	0	0	0	0	2	69	87	33.4	
KG /DAY (COD)	GUIDELINE	-	-	-	-	-	-	-	-	-	-	-	-		
PHOSPHOR UNF.TOT.	ACTUAL	0.09	0.16	0.17	0.06	0.05	0	0	0	0	0	0.13	0.15	0.068	
KG /DAY (PPUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
RESIDUE FILTERED	ACTUAL	2.1	3.9	2.3	1.4	1.2	0	0	0	0	0.1	2.1	3.4	1.38	
KG /DAY (RSF)	REQUIREMENT	151	151	151	151	151	151	151	151	151	151	151	151	151	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Kimberly Clark of Canada Ltd.
& PLANT LOCATION: St. Catharines
IMIS NO.: 0000830208

MOE REGION: West Central
DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper Mill
SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek
INDIRECT: 10.0 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Pulp and clean waste paper are made into tissue and special papers.

EFFLUENT CHARACTERISTICS: Residual solids produce a turbid effluent.

EFFLUENT TREATMENT: "Saveall" screens precede primary clarifier and retention ponds for solids removal.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Target loads set by Pulp and Paper Committee consistent with best practicable technology.

EXCEEDANCES: Company exceeded BOD5 guidelines 5 out of 12 months.

REMEDIAL ACTIONS: Company conducted pilot study to establish treatment methodolgy to reduce BOD_5 to acceptable limits using aeration. Pilot study concluded aeration would be ineffective. Company requested MOE concurrence for pilot study using bio-augmentation. Pilot study will be conducted over a four (4) month period and be complete in approximately March, 1990. Application to be submitted for Certificate of Approval.

COMMENTS: Company presently operating under pilot C. of A to establish effectiveness of treatment. Final Certificate of Approval to be issued end of 1989 to reflect enforceable limits.

Four trout bioassays in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

07/19/89

000083-02-0(8) KIMBERLY CLARK OF CANADA LTD. ST.CATHARINES REPORT DATE: 05 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8607	8476	8674	8034	8884	8706	9120	7325	10316	9504	9527	9787	8913	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	385.4	367.5	553.3	451.4	503.7	478.6	412.8	376.3	444.5	294.2	379.7	328.6	415	
KG /DAY (BOD5)	GUIDELINE	430	424	434	402	444	435	456	366	516	475	476	489	446	5

CONTROL POINT: 0300 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE FILTERED	ACTUAL	801.2	608.9	699.8	642	817.8	672.4	562.1	427.3	708.6	590.4	613.4	589.3	644.2	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	54.7	75.8	59.3	1.8	0	3.8	2.3	4.2	2.1	0.8	2.1	0.5	18.4	
KG /DAY (RSP)	GUIDELINE	430	424	434	402	444	435	456	366	516	475	476	489	446	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 79% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Kimberly-Clark of Canada Ltd. **IMIS NO.:** 0000830000
& PLANT LOCATION: Terrace Bay

MOE REGION: Northwest **DISTRICT:** Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill **SIC CODE:** 271

RECEIVING WATERBODY: **DIRECT:** Blackbird Creek
INDIRECT: Lake Superior (Jackfish Bay)

DESCRIPTION OF ACTIVITY: Hardwood and softwood logs are made into bleached pulp by the kraft pulping process

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibres) and organic compounds (some chlorinated) from the pulping process.

EFFLUENT TREATMENT: Clarifiers, spill collection. Two clarifiers remove solids and foul condensates are steam stripped to remove odourous organics.

DISCHARGE TYPE: continuous surface

COMPANY LIMITS SET BY: **CONTROL ORDER (EFFECTIVE DATE):** An amended Control Order was issued in 1988 which expires in 1991. The discharge of BOD is not to exceed 30 kg/ADMT and by May 31, 1990 is to be further reduced to 10 kg/ADMT. The suspended solids (RSP) is not to exceed 7.5 tonnes per day and by June 30, 1989 is to be further reduced to 7.0 tonnes per day. The effluent is to meet toxicity requirements by October, 1989.

MOE OR FEDERAL GUIDELINES: MOE guideline used for phosphorus.

EXCEEDANCES: Yes. There were exceedances of BOD5 in June, July, August, September and October.

REMEDIAL ACTIONS: Investigation and Enforcement Branch (I.E.B) investigating cause of occurrences. The company began construction of an aerated lagoon in May 1988 that is to be operational by the end of October 1989.

COMMENTS:
Four trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 11.8% to 41.4%.

07/31/89

000083-00-0(0)   KIMBERLY-CLARK OF CANADA LTD.   TERRACE BAY   REPORT DATE: 19 OCT 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	114001	112001	114001	114001	119001	132001	128801	137101	123201	125101	121601	110601.1		
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	25000	23500	27000	25000	28700	28900	30200	31300	27300	22300	21900	23600	26225	5
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
PHOSPHOR UNF.TOT.	ACTUAL	53.52	74.1	82.96	50.43	72.8	58.8	85.77	57.95	27.55	46.93	78.32	55.07	62	
KG /DAY (PPUT)	GUIDELINE	114	112	114	114	119	132	128.8	137.1	123.2	125.1	121.6	110.6	120.95	
RESIDUE PARTIC.	ACTUAL	6000	4400	4000	5000	5100	5400	4230	5560	4690	4850	5250	3880	4863	
KG /DAY (RSP)	REQUIREMENT	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	0

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Kraft Foods Ltd
& PLANT LOCATION: Ingleside

IMIS NO.: 0001940006

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 104

RECEIVING WATERBODY: DIRECT: Hoople Creek
INDIRECT: 2.0 km to St. Lawrence River

DESCRIPTION OF ACTIVITY: Milk is made into cheese

EFFLUENT CHARACTERISTICS: Effluent generated by the cleaning of cheese making equipment. Contains dissolved and suspended milk solids.

EFFLUENT TREATMENT: Extended aeration using diffused air.

DISCHARGE TYPE: Continuous via a ditch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Yes. Almost all targets set for BOD5, RSP (suspended solids) and PPUT (phosphorus) were exceeded.

REMEDIAL ACTIONS. Kraft has submitted plans for approval to upgrade its effluent treatment facilitiy. The first stage of the upgrading, the installation of an anaerobic pre-treatment stage, will be completed in 1989. The C. of A. recently issued contains a condition that will require the company to complete a second stage of the upgrading so the effluent will meet strict new requirements set by the Ministry or enter into an agreement with the Township of Osnabruck for a combined treatment facility.

COMMENTS: Company asked to report formally the loadings and flow in August, 1988.

10/16/89

000194-00-0(6) KRAFT LIMITED INGLESIDE REPORT DATE: 10 MAY 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL								2312	2709	2672	2264	2444	2480	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	98.6	109.4	84.1	53.9	94.6	68.2	23.9	79.2	72.5	61.6	22.4	63.5	69.3	
MG/L AS O (BOD5)	GUIDELINE	25	25	25	25	25	25	25	25	25	25	25	25	25	10
PHOSPHOR UNF.TOT.	ACTUAL	8.6	10	8.2	7.6	9.5	8.2	0.86	4.8	9	8.2	2.9	3.8	6.81	
MG/L AS P (PPUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	11
RESIDUE PARTIC.	ACTUAL		143.3	70.6	77	194.2	203	7.8	78.9	79.9	109.4	35	69.7	97.2	
MG/L (RSP)	GUIDELINE		25	25	25	25	25	25	25	25	25	25	25	25	10

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 31 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 11% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Lac D' Amiante Du Quebec Ltee. - Aquarius Mine

& PLANT LOCATION: Porcupine

IMIS NO.: 0001110005

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Smelting, Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Lagare Lake
INDIRECT:

DESCRIPTION OF ACTIVITY: Gold mining and milling to a concentrate.

EFFLUENT CHARACTERISTICS: suspended solids.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): September 29, 1987.

EXCEEDANCES: Suspended solids (RSP) - 7 times; phenols - 3 times.

REMEDIAL ACTIONS: Suspended solids discharge regulated with modified internal tailings management plan to ensure compliance. Phenols exceedances may be attributed to natural background values in tailings basin. An audit program has been established and if high background level are confirmed the Certificate of Approval will be amended to change the phenol criteria requirements.

COMMENTS:

08/02/89

001110-00-0(5) AQUARIUS MINE LAC D'AMIANTE DU QUEBEC LTEE PORCUPINE
CONTROL POINT: 0100 DATA FOR 1988
REPORT DATE: 07 AUG 89

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT. MG/L AS AS	ACTUAL		0.0002									0.0001	0.0001	0	
	GUIDELINE		0.5									0.5	0.5	0.5	0
NICKEL UNF.TOT. MG/L AS NI	ACTUAL										0.065	0.075	0.063	0.068	
	GUIDELINE										1	1	1	1	0
NH3-N FIL.REAC MG/L (NNH3FR)	ACTUAL	1.2	2.2	2.14	4.87	2.6	0.23	0.63	0.9	0.4	1.47	0.82		1.59	
	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10		10	0
LEAD UNF.TOT. MG/L AS PB	ACTUAL	0												0	
	GUIDELINE	1												1	0
PH (PH)	ACTUAL	7.4	7.3	7.65	7.55	7.35	8.5	9	8.2	7.6	7.6	7.6	7.7	7.79	
	GUIDELINE													'	0
PHOSPHOR FIL.TOT. MG/L AS P (PPFT)	ACTUAL	0.3	0.4	0.875	0.455	0.32	0.75	0.7	0.29	0.19	0.18	0.25	0.31	0.418	
	GUIDELINE														
RESIDUE PARTIC. MG/L (RSP)	ACTUAL	4	2	0	7	24.8	17	14	16	18	29	86	26	20.3	
	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	7
RESIDUE TOTAL MG/L (RST)	ACTUAL	383	385	362	343	164	262	276	193	257	324	251	256	288	
	GUIDELINE														
ZINC UNF.TOT. MG/L AS ZN	ACTUAL	0.08												0.08	
	GUIDELINE	1												1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 43, FOR A TOTAL COMPLIANCE RECORD OF 84% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Lac Minerals (Macassa Div.)
& PLANT LOCATION: Kirkland Lake
IMIS NO.: 0001410000

MOE REGION: Northeast
DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Amikougami Cr.
INDIRECT: Blanche River

DESCRIPTION OF ACTIVITY: Gold mining, milling and recovery using Cyanide Circuit Recovery.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of copper, nickel, zinc etc.

EFFLUENT TREATMENT: Natural degradation.

DISCHARGE TYPE: seasonal.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): A Certificate of Approval for Phase 1 of a two stage program to improve effluent quailty has been issued. Stage 2 will be issued in 1989.

MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: H2O plant under construction.

COMMENTS: The company effluent discharge took place in August to November 1988. No exceedances occurred. The treatment plant was approved in 1988 and is scheduled to start up in 1989.

In 1988, two trout bioassays indicated that both the final effluent, and the Dam "H" effluent, to have been non-acutely lethal to the test fish.

08/02/89

000141-00-0(0)   LAC MINERALS LTD.   KIRKLAND LAKE   REPORT DATE: 07 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL								0.19	0.066	0.185	0.27		0.178	
MG/L (CCNAUR)	GUIDELINE								2	2	2	2		2	0
COPPER UNF.TOT.	ACTUAL								0.22	0.34	0.16	0.21		0.233	
MG/L (CUUT)	REQUIREMENT								1	1	1	1		1	0
PH	ACTUAL								7.84	7.83	7.93	7.81		7.85	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL								4.25		13	9.4		8.88	
MG/L (RSP)	GUIDELINE								15		15	15		15	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 15, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Lac Minerals Ltd. Page-Williams Mine Marathon

IMIS NO.: 0052710209

MOE REGION: North West

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Smelting

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Frank Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling.

EFFLUENT CHARACTERISTICS: Hevy metals, suspended solids, pH, cyanide.

EFFLUENT TREATMENT: Approved treatment utilizing hydrogen peroxide for cyanide destruction, and co-precipitation of heavy metals utilizing copper sulphate and ferril sulphate.

DISCHARGE TYPE: Continuous during seasonal discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): July 1987 Requirements under Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None. In compliance.

REMEDIAL ACTIONS:

COMMENTS: No discharge Jan to April and month of Dec. 1988.

Three trout bioassays conducted in 1988 indicated the final treated effluent to have been non-acutely lethal to the test fish.

07/31/89

005271-02-0(9)   LAC MINERALS LTD.   PAGE-WILLIAMS MI MARATHON   REPORT DATE: 26 JUNE 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL				0.055	0.077	0.112	0.108	0.1	0.088	0.085	0.1		0.091	
MG/L (ASUT)	REQUIREMENT				1	1	1	1	1	1	1	1		1	0
CYANIDE AVAIL	ACTUAL					0.04	0.02	0.01	0.01	0.024	0.226	0.388		0.103	
MG/L (CCNAUR)	REQUIREMENT														
COPPER UNF.TOT.	ACTUAL				0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.024		0.012	
MG/L (CUUT)	REQUIREMENT				1	1	1	1	1	1	1	1		1	0
LEAD UNF.TOT.	ACTUAL					0.02	0.028	0.02	0.018	0.025	0.028	0.034		0.025	
MG/L (PBUT)	REQUIREMENT					1	1	1	1	1	1	1		1	0
PH	ACTUAL				7.55	7.7	7.6	7.45	7.76	7.48	7.58	7.64		7.6	
(PH)	REQUIREMENT														0
ZINC UNF.TOT.	ACTUAL					0.002	0.006	0.002	0.002	0.002	0.003	0.004		0.003	
MG/L (ZNUT)	REQUIREMENT					1	1	1	1	1	1	1		1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 38, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Lake Ontario Cement
& PLANT LOCATION: Picton

IMIS NO.: 0041860008

MOE REGION: South East

DISTRICT: Kingston

INDUSTRIAL SECTOR: Industrial Minerals (Cement Manufacture)

SIC CODE:

RECEIVING WATERBODY: DIRECT: Picton Bay
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Cement Manufacture

EFFLUENT CHARACTERISTICS: BOD5, Suspended solids and total phosphorus typical of domestic sewage.

EFFLUENT TREATMENT: Napier Reid package mechanical treatment plant.

DISCHARGE TYPE: Continous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Operational objectives for secondary mechanical treatment plant BOD5 and suspended solids (RSP) 25 mg/L assessed on an annual average. Total phosphorus (PPUT) 1 mg/L assessed on a monthly basis.

EXCEEDANCES: Yes. Three exceedance of RSP on monthly basis; fails annual average.

REMEDIAL ACTIONS: Waterline leaks which created excessive flow found and corrected.

COMMENTS: Initial iMIS report for this discharge.

07/22/89

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004186-00-0(8)    LAKE ONTARIO CEMENT                              PICTON                                                   REPORT DATE: 27 JUN 89
CONTROL POINT: 0100 DATA FOR 1988                                                                                                  ANNUAL    TOTAL
FLOW/CONCENTRATION PARAMETERS       JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------
BOD 5 DAY            ACTUAL                         7.2     2.4     2.8     2.8     4.8     7.2     7.2     4.8     2.8     4.8    3.9·
MG/L AS O (BOD5 ) GUIDELINE                          25      25      25      25      25      25      25      25      25      25     25          0

PHOSPHOR UNF.TOT.    ACTUAL                       0.545    0.75    0.52    0.15    0.34    0.36     0.1    0.27    0.12     0.6  0.313
MG/L AS P (PPUT ) REQUIREMENT                         1       1       1       1       1       1       1       1       1       1      1          0

RESIDUE PARTIC.      ACTUAL                       267.5     9.6     112     6.3     9.1      93    19.2    19.2      19    10.9  47.15
MG/L (RSP )       GUIDELINE                          25      25      25      25      25      25      25      25      25      25     25          3

NOTE: S/C -SEE COMMENT.  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS       -
**************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   3 OUT OF  36, FOR A TOTAL COMPLIANCE RECORD OF  92% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: LeFarge Canada Inc. **IMIS NO.:** 0021390109
& PLANT LOCATION: Bath

MOE REGION: Southeast **DISTRICT:** Kingston

INDUSTRIAL SECTOR: Industrial Minerals (Cement Manufacture) **SIC CODE:**

RECEIVING WATERBODY: **DIRECT:** Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT CHARACTERISTICS: BOD5, Suspended solids and total phosphorus typical of domestic sewage.

EFFLUENT TREATMENT: sewage lagoon.

DISCHARGE TYPE: Continous

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Operational objectives for conventional lagoon treatment BOD5 30 mg/L and suspended solids (RSP) 40mg/L assed on an annual average. Total phosphorus (PPUT) 1 mg/L assessed on a monthly basis.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Initial IMIS report for this discharge.

07/15/89

002139-01-0(9) LAFARGE CANADA INC BATH REPORT DATE: 08 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL												14.6	14.6	
MG/L AS O (BOD5)	REQUIREMENT												30	30	0
PHOSPHOR UNF.TOT.	ACTUAL												0.22	0.22	
MG/L (PPUT)	REQUIREMENT												1	1	0
RESIDUE PARTIC.	ACTUAL												21.5	21.5	
MG/L (RSP)	REQUIREMENT												40	40	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 3, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: MacMillan Bloedel Limited
Sturgeon Falls Division
Sturgeon Falls

IMIS NO.: 0001530005

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Sturgeon River to Lake Nipissing to French River Main Channel
INDIRECT: 124 km to Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Two different processes are used on softwoods (Red and White pine) and hardwood (Maple, Poplar, Birch). Chips are thermal refined and glued to form hard-board. Chips are converted by the neutral sulphite semi-chemical process into corrugating medium.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood, pulp) and dissolved organics.

EFFLUENT TREATMENT: Primary clarifier removes suspended solids. An anaerobic secondary treatment process is under construction to reduce mill BOD load to approximately 12 tonnes per day.

DISCHARGE TYPE: Continuous, seven days a week; three separate outfalls (clean water effluents, spent liquor and clarifier).

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Loading requirements are based on the Control Order limit for suspended solids. BOD reduction is to be at the maximum degree practicable following a two year optimization period.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

08/01/89

000153-00-0(5)   MACMILLAN BLOEDEL LIMITED STURGEON FALLS DIVISION   STURGEON FALLS   REPORT DATE: 25 SEP 89

CONTROL POINT: 0700 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	11292	11531	12039	11596	10347	11707	10634	11075	12831	11359	11474	10063	135948	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	34830	38570	37060	42400	36470	37580	33190	29880	40620	36490	35490	30000	36048	
KG /DAY (BOD5)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	2550	2860	2590	2370	1920	2030	1400	1970	2480	1690	2510	2030	2200	
KG /DAY (RSP)	REQUIREMENT	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Malette Kraft Pulp and Power
& PLANT LOCATION: Smooth Rock Falls

IMIS NO.: 0000860502

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Kraft Pulp Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Mattagami R.
INDIRECT: Moose R. to James Bay

DESCRIPTION OF ACTIVITY: Softwood (Black spruce, Jack pine, Balsam fir) is converted by the bleached kraft processes into market kraft pulp.

EFFLUENT CHARACTERISTICS: Contains suspended organic compounds from pulping process. Also contains chemicals that affect the alkalinity of the receiver.

EFFLUENT TREATMENT: Raw suspended solids waste loads are reduced in the mill by recovery systems for wet bark, reject knots from unbleached pulp and bleached fibre from spills. A steam stripper removes organic compounds (some odourous) from condensates. The total mill effluent passes through a primary clarifier, a settling pond and a foam pond.

DISCHARGE TYPE: Continuous diffuser to Mattagami River.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): The August 7, 1985 Control Order is still in effect with a daily limit for BOD of 20 tonnes/day and a 30 day rolling average of 10.0 tonnes/day. The maximum daily net loading for suspended solids (RSP) is 4.5 tonnes/day and the 30 day rolling average limit is 9.0 tonnes/day.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: An application has been approved for construction and operatin of a cogeneration facility. The issuance of a Control Order is expected in 1989 which will further reduce BOD5 and suspended solids loadings to the receiver.

In 1988, two trout bioassays indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 22.7% and 46.4%.

05/02/89

000086-05-0(2) MALETTE KRAFT PULP & POWER CO. LTD. SMOOTH ROCK FALLS REPORT DATE: 07 AUG 89
CONTROL POINT: 0400 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	8900	8100	8200	7500	7900	7500	5800	6100	6300	7000		8800	7464	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
RESIDUE PARTIC.	ACTUAL	1900	2600	1900	1700	2400	2000	2400	2600	2100	1900	1900	3300	2225	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Mattabi Mines Ltd.
& PLANT LOCATION: Sturgeon Lake Area,
District of Kenora

IMIS NO.: 0042110106

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Bell River, Sturgeon Lake
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Crushed ore is milled into zinc concentrate

EFFLUENT CHARACTERISTICS: Contains dissolved metals of copper, zinc, lead, etc.

EFFLUENT TREATMENT: Tailings decant is limed for metals precipitation, metal hydroxide precipitates are settled, clearwater recycled to mill process, decant effluent discharged.

DISCHARGE TYPE: Continuous decanting.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Performance is assessed by 'Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981'

EXCEEDANCES: Yes. Zinc (4/12), pH (3/12), iron (4/12).

REMEDIAL ACTIONS: High flow rates and contaminate concentrations late in 1988 were the result of severe rainfall conditions which exceeded the hydraulic capacity of the treatment system. Problems will end when plant operations cease in 1990.

COMMENTS: Three trout bioassays conducted in 1988 indicated the final effluent to have been acutley lethal to test fish. Test results determined that the percentage effluent required to kill 50% of the test fish by the end of four days exposure were 60.6%, 8.6%, and 71.2%.

07/31/89

004211-01-0(6) MATTABI MINES LTD. IGNACE REPORT DATE: 15 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9870	5320	4620	12300	9160	9530	7060	14020	16700	14700	12560	11550	10616	
M3 /DAY (FTFLOW)	REQUIREMENT														
IRON UNF.TOT.	ACTUAL	0.42	0.22	0.13	0.59	0.7	0.31	0.26	1.43	1.13	3.14	1.24	0.09	0.872	
MG/L (FEUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	4
PH	ACTUAL	10.68	9.92	10.98	10.25	10	10.3	9.8	8.01	8.65	8.16	9.63	10.95	9.78	
(PH)	GUIDELINE														3
RESIDUE PARTIC.	ACTUAL	4	1	1.5	10	2.5	8	6	9	5	4.5	11	9	5.96	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL	0.17	0.1	0.1	0.26	0.26	0.26	0.16	1.87	1.08	4.3	1.62	0.46	0.887	
MG/L (ZNUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	4

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 77% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: McBean Mines Ltd.
& PLANT LOCATION: Dobie

IMIS NO.: 0051730000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Victoria Creek to Misema River to Blanch River
INDIRECT:

DESCRIPTION OF ACTIVITY: Gold mining and Recovery Using Merryl-Crowe Process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, nickel, zinc, solids.

EFFLUENT TREATMENT: SO_2/air cyanide distruct system + tailings ponds.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES:

EXCEEDANCES: Yes.

REMEDIAL ACTIONS:

COMMENTS: This operation was shutdown in October 1987. Due to difficulty in acessing the final discharge, the report shows results at the internal control point. Historical data shows the company is able to meet the guideline at the final discharge. When company resumes operation, sampling at final discharge will be required. monitoring of the decant from the tailings dam is being conducted by the company.

08/02/89

005173-00-0(0) MCBEAN MINE DOBIE REPORT DATE: 10 MAY 89
CONTROL POINT: 0201 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC FIL.TOT.	ACTUAL							0.01						0.01	
MG/L AS SR	GUIDELINE							0.5						0.5	0
CYANIDE FREE	ACTUAL							13.9						13.9	
MG/L AS HCN	GUIDELINE							2						2	1
COPPER FIL.TOT.	ACTUAL							0.21						0.21	
MG/L AS CU	GUIDELINE							1						1	0
IRON FIL.TOT.	ACTUAL							6.7						6.7	
MG/L AS FE	GUIDELINE							1						1	1
NICKEL FIL.TOT.	ACTUAL							0.137						0.137	
MG/L AS NI	GUIDELINE							1						1	0
NH3-N FIL.REAC	ACTUAL							0						0	
MG/L (NNH3FR)	GUIDELINE							10						10	0
PH	ACTUAL							8.4						8.4	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL							0						0	
UG/L PHENOL	GUIDELINE							20						20	0
RESIDUE FILTERED	ACTUAL							0						0	
MG/L (RSF)	GUIDELINE														
SULPHATE FIL.REAC	ACTUAL							397						397	
MG/L AS SO4	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 8, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1988.

005173-00-0(0)   MCBEAN MINE   DOBIE   REPORT DATE: 07 AUG 89

CONTROL POINT: 0202 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC FIL.TOT.	ACTUAL			0.02				64833						32417	
MG/L AS AS	GUIDELINE														
CYANIDE FREE	ACTUAL			1.6				0.05						0.825	
MG/L AS HCN	GUIDELINE														
COPPER FIL.TOT.	ACTUAL			0.02				0.02						0.02	
MG/L AS CU	GUIDELINE														
IRON FIL.TOT.	ACTUAL			5.27				0.17						2.72	
MG/L AS FE	GUIDELINE														
NICKEL FIL.TOT.	ACTUAL			0.07				0.01						0.04	
MG/L AS NI	GUIDELINE														
NH3-N FIL.REAC	ACTUAL			0.1				0.2						0.15	
MG/L (NNH3FR)	GUIDELINE														
LEAD FIL.TOT.	ACTUAL			0.04				0.02						0.03	
MG/L AS PB	GUIDELINE														
PH	ACTUAL			6.6				6.6						6.6	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL			0				2.2						1.1	
UG/L PHENOL	GUIDELINE														
SULPHATE FIL.REAC	ACTUAL			52				39.3						45.6	
MG/L AS CR	GUIDELINE														
ZINC FIL.TOT.	ACTUAL			0.02				0.01						0.015	
MG/L AS ZN	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Minnova Inc. Winston Lake Project
Schreiber

IMIS NO.: 0096100003

MOE REGION: North West

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Smelting

SIC CODE: 0591, 0594

RECEIVING WATERBODY: DIRECT: Whitesand River
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Sulphide ore is mined and milled into copper and zinc.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, phosphorus, ammonia, oil and grease, phenols, BOD5.

EFFLUENT TREATMENT: Mill tailings water treated with lime to effect pH control and precipitate metals in a sludge pond. Sludge pond effluent may receive acid treatment prior to polishing pond.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-0001-87-007 issued Dec. 23, 1987.

Parameter	Effluent Concentration Limits	Parameter	Effluent Concentration Limits mg/L
Total suspended solids (RSP)	15 mg/L	Zinc (ZNUT)	0.5mg/L
Oil and Grease (SOLEXT)	15mg/L	Copper (CUUT)	0.3mg/L
BOD5	15mg/L	Nickel (NIUT)	0.5mg/L
Ammonia (expressed as N) (NNH3FR)	0.2mg/L	Arsenic (ASUT)	0.5mg/L
Phosphorus (except)when discharge <4.5 kg/day)	1mg/L	Lead (PBUT)	0.2mg/L
pH	5.5 to 10.6		

MOE OR FEDERAL GUIDELINES: Phenol objective 0.02 mg/L.

EXCEEDANCES: Yes. Oil and grease (SOLEXT) ; unionized ammonia (NNH3FR)

REMEDIAL ACTIONS: Split sampling by MOE and the company indicates oil and grease problem may be the result of analytical errors. The company installed a temporary pH control system in November 1988 to control ammonia levels. A permanent CO_2 system for ammonia control will be installed in 1989. No known source of phenols. The causes of the exceedances are being investigated by the company and MOE.

COMMENTS: Company began to discharge in July 1988.
Toxicity - Two tests LC50 >100%
07/31/89

009610-00-0(3) MINNOVA INC. WINSTON LAKE PROJECT SCHREIBER

CONTROL POINT: 0100 DATA FOR 1988

REPORT DATE: 16 OCT 89

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	0	0	0	0	0	0	1380	2880	3190	2110	4320	2000	1323	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL							0.007	0.001	0.001	0.001	0.001	0.003	0.002	
MG/L (ASUT)	REQUIREMENT							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
BOD 5 DAY	ACTUAL								0.1	5	4.1	4.6	3.9	3.54	
MG/L AS O (BOD5)	REQUIREMENT								15	15	15	15	15	15	0
COPPER UNF.TOT.	ACTUAL							0.02	0.02	0.01	0.015	0.02	0.03	0.019	
MG/L (CUUT)	REQUIREMENT							0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
FECAL COLIFORM	ACTUAL								10	10	10	10	10	10	
CNT /100ML	GUIDELINE								200	200	200	200	200	200	0
NICKEL UNF.TOT.	ACTUAL							0.005	0.005	0.007	0.005	0.008	0.01	0.007	
MG/L (NIUT)	REQUIREMENT							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
NH3-N FIL.REAC	ACTUAL							0.004	0.006	0.002	0.003	0.426	0.019	0.077	
MG/L (NNH3FR)	REQUIREMENT							0.2	0.2	0.2	0.2	0.2	0.2	0.2	1
LEAD UNF.TOT.	ACTUAL							0.005	0.005	0.005	0.005	0.01	0.01	0.007	
MG/L (PBUT)	REQUIREMENT							0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
PH	ACTUAL							7.8	7.1	7.1	7.5	9.5	7.7	7.78	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL								0.03	0.001	0.05	0.001	0.015	0.019	
MG/L (PHNOL)	REQUIREMENT								0.2	0.2	0.2	0.2	0.2	0.2	0
PHOSPHOR UNF.TOT.	ACTUAL							0.09	0.07	0.11	0.05	0.04	0.12	0.08	
MG/L AS P (PPUT)	REQUIREMENT							1	1	1	1	1	1	1	0

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RESIDUE PARTIC.      ACTUAL                                                    2.4      2      2.7      1.4      3.8      3.2     2.58
MG/L (RSP )        REQUIREMENT                                                  15     15       15       15       15       15       15        0

SOLVENT EXTRACT.     ACTUAL                                                         287.6      7.8      0.9     39.6        8     68.8
MG/L (SOLEXT)      REQUIREMENT                                                         15       15       15       15       15       15        2

ZINC UNF.TOT.        ACTUAL                                                   0.18   0.12     0.19    0.155     0.11     0.12    0.146
MG/L (ZNUT )       REQUIREMENT                                                 0.5    0.5      0.5      0.5      0.5      0.5      0.5        0

NOTE: S/C -SEE COMMENT.  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS  5.50 -  10.6
****************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   3 OUT OF  74, FOR A TOTAL COMPLIANCE RECORD OF  96% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Mitsubishi Canada Inc.
& PLANT LOCATION: Midland
IMIS NO.: 0001880004

MOE REGION: Central
DISTRICT: Barrie

INDUSTRIAL SECTOR:
SIC CODE: 334, 3399

RECEIVING WATERBODY: DIRECT: Wye River
INDIRECT: Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Manufactures television tubes.

EFFLUENT CHARACTERISTICS: Contains trace organics

EFFLUENT TREATMENT: Chemical Flocculation - Sedimentation

DISCHARGE TYPE: Continuous - treated wastewater combines with cooling waters, roof and parking lot drainage prior to discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval #4-300-002-87-876 limits fluoride discharge to 500 kg per four week period and suspended solids concentration to 20mg/L.

MOE OR FEDERAL GUIDELINES:

EXCEEDANCES: None

REMEDIAL ACTIONS: Company has rehabilitated Lagoon cell #1 to provide adequate residence time for complete mixing of acidic and alkyl waste waster from the plant process.

COMMENTS: Company modified testing procedures for filtered residue (suspended solids), after consultation with Ministry of the Environment Laboratory personnel in April 1988. Results have since been in compliance.

10/02/89

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000188-00-0(4)    MITSUBISHI ELECTRONICS INDUSTRIES CANADA INC       MIDLAND                                                                REPORT DATE: 20 OCT 89
CONTROL POINT: 0200 DATA FOR 1988                                                                                                                  ANNUAL     TOTAL
FLOW/CONCENTRATION PARAMETERS            JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                 ACTUAL             1090     1042     1017     1019      989      972      912      947      885      895      874      901      962
M3 /DAY (FTFLOW)   GUIDELINE

CHROMIUM +6          ACTUAL             0.09    0.127    0.108     0.09     0.09    0.096    0.083    0.082     0.13     0.12    0.162    0.118    0.108
MG/L AS CR         GUIDELINE               1        1        1        1        1        1        1        1        1        1        1        1        1           0

FLUORIDE UNF.TOT.    ACTUAL              5.6        7      6.4      6.8      5.4      6.4      5.4      5.2      5.5      5.6      9.2     10.1     6.55
MG/L AS F (FFIDUT)REQUIREMENT         S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C

PH                   ACTUAL                7      7.8      7.1      6.8      7.6      6.7      6.9      6.8      6.9        7      7.5      6.8     7.07
(PH )              GUIDELINE                                                                                                                                       0

RESIDUE FILTERED     ACTUAL               32       38       41       46       16       20        7       16        7       13       14       20     22.5
MG/L (RSF )        GUIDELINE

RESIDUE TOTAL        ACTUAL              448      495      466      562      500      589      589      506      468      465      523      501      509
MG/L (RST )        GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Nestle
& PLANT LOCATION: Chesterville

IMIS NO.: 0000900001

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Food and beverage

SIC CODE: 1089

RECEIVING WATERBODY: DIRECT: South Nation R.
INDIRECT: Ottawa R.

DESCRIPTION OF ACTIVITY: Manufacture of food and beverage products.

EFFLUENT CHARACTERISTICS: Contains suspended solids (insoluble organics) and food organics.

EFFLUENT TREATMENT: Secondary treatment with 4 month aerated retention lagoon.

DISCHARGE TYPE: Continuous - except from June 15 to October 15.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval for phosphorus removal equipment issued 1988 specifies PPUT (phosphorus) requirement. Requirements for BOD5, and RSP (suspended solids) are set out in original C. of A. issued for sewage works requirement.

EXCEEDANCES: Yes. Excesses of the BOD5, RSP and PPUT legal requirements are minor.

REMEDIAL ACTIONS: Company evaluating options to reduce discharges to within legal requirements.

COMMENTS: Occurence reports issued but no legal action recommended. No discharge in January, July and August.

10/16/89

000090-00-0(1)   NESTLE   CHESTERVILLE   REPORT DATE: 08 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		588	602	1809	1578	249			319	619	652	989	823	
M3 /DAY (FTFLOW)	REQUIREMENT		2045	2045	2045	2045	2045			2045	2045	2045	2045	2045	0
BOD 5 DAY	ACTUAL		9	11	35	28	3.3			4	5.7	19	14	14.3	
KG /DAY (BOD5)	REQUIREMENT		8.82	9.03	27.1	23.7	3.74			4.79	9.29	9.78	14.8	12.3	5
PHOSPHOR UNF.TOT.	ACTUAL		0.5	0.6	2	2.1	0.56			0.2	1.4	0.8	1.2	1.04	
KG /DAY (PPUT)	GUIDELINE		0.588	0.602	1.81	1.58	0.249			0.319	0.619	0.652	0.989	0.823	6
RESIDUE PARTIC.	ACTUAL		9	12	38	25	7.7			1.2	2.7	15	18	14.3	
KG /DAY (RSP)	REQUIREMENT		8.82	9.03	27.1	23.7	3.74			4.79	9.29	9.78	14.8	12.3	7

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 18 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Nitrochem Inc.
& PLANT LOCATION: Maitland
IMIS NO.: 0001710003

MOE REGION: Southeast
DISTRICT: Kingston

INDUSTRIAL SECTOR: Inorganic Chemicals
SIC CODE: 372

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Nitric acid and different grades of ammonia based fertilizer are made.

EFFLUENT CHARACTERISTICS: Contains nitrogenous wastes.

EFFLUENT TREATMENT: An evaporation-condensation process has been used since 1987 to recover nitrogen compounds for recycling into nitrogen based fertilizer solutions.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (1979) The order is to be ammended to redefine the control points used for montoring as well as the discharge limits.

EXCEEDANCES: None. The tabulated values in this report pertain to the final combined discharge from the facility. No limits are set by the present Control Order for the final combined discharge nor do appropriate Federal or Provincial Guidelines exist in the case of Total (NNKUR) or Nitrate plus Nitrite (NNOTUR).
Provincial guidelines set the pH range at 5.5 to 9.5. The values reported for pH, however, are not the pH of the final effluent, therefore, exceedances shown are not valid.

REMEDIAL ACTIONS: The company has applied for a Certificate of Approval to install process equipment which will further reduce the total Kjeldahl Nitrogen. The C. of A. will be issued in 1989.

COMMENTS: Recalibration of flow measurement equipment in June of 1988 indicated that flow and loadings reported before July 1988 may have been higher than actual.

A trout bioassay in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 3.2%. Due to the sensitivity of fish to ammonia it is not anticipated that the effluent toxicity can be substantially reduced.

07/22/89

000171-00-0(3)   NITROCHEM   MAITLAND   REPORT DATE: 08 AUG 89

SUMMARY FOR EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA   DISCHARGED INTO: 02/005/   ST. LAWRENCE R.

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1190	1150	1200	1110	1380	1220	1020	940	700	840	850	780	1032	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.3	8.9	10.2	10.5	10.4	10.7	10.3	10.5	10.3	10.1	9.4	8.7	10	
(PH)	GUIDELINE														9
KJELDAHL ORGANIC	ACTUAL	262	352	345	284	315	252	174.7	170.4	78	137	130	121.3	218	
KG /DAY (NNKUR)	GUIDELINE	34	29	33.5	30	42	34	50.5	46.5	34	41	41.5	38.2	37.8	12
NO2+NO3N UNF.REAC	ACTUAL	24	197	127	160	167	155	17.1	99.8	8.8	24	11.2	9.4	83.4	
KG /DAY (NNOTUR)	GUIDELINE	13.6	11.6	13.4	12	16.8	13.6	20.2	18.6	13.6	16.4	16.6	15.3	15.1	8
PO4 FIL.REAC	ACTUAL	1.1	4	3	3	1.7	3	0.05	0.04	0.07	0.095	0.05	0.04	1.35	
KG /DAY (PPO4FR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 29 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 19% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Noranda-Hemlo Inc.
& PLANT LOCATION: Marathon

IMIS NO.: 0042110205

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Lim Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, pH, cyanide.

EFFLUENT TREATMENT: Approved treatment utilizing copper sulphate and ferric sulphate in addition to cyanide oxidation of effluent. Disposal area decant to Lim Lake. Mill site sedimentation pond effluent to Cedar Creek.

DISCHARGE TYPE: continuous during seasonal discharge

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): May 1984. Requirements established by 'Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None. In compliance.

REMEDIAL ACTIONS:

COMMENTS: No discharge January to September.

In 1988, two trout bioassays indicated the final effluent to have been non-acutely lethal to the test fish.

07/31/89

004211-02-0(5) HEMLO GOLD MINES INC., GOLDEN GIANT MINE MARATHON REPORT DATE: 26 JUNE 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	0	0	0	0	0	0	0	0					0	
M3 /DAY (FTFLOW)	REQUIREMENT														
ARSENIC UNF.TOT.	ACTUAL									0.001	0.001	0.001	0.001	0.001	
MG/L (ASUT)	REQUIREMENT									1	1	1	1	1	0
CYANIDE AVAIL	ACTUAL									1.1	0.34	0.18	0.28	0.475	
MG/L (CCNAUR)	REQUIREMENT														
CYANIDE FREE	ACTUAL									0.03	0.05	0.11	0.18	0.093	
MG/L (CCNFUR)	REQUIREMENT														
COPPER UNF.TOT.	ACTUAL									0.12	0.05	0.03	0.04	0.06	
MG/L (CUUT)	REQUIREMENT									1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL									0.47	0.36	0.2	0.35	0.345	
MG/L (FEUT)	REQUIREMENT									1	1	1	1	1	0
PH	ACTUAL									8.13	7.44	7.32	7.44	7.58	
(PH)	REQUIREMENT														0
ZINC UNF.TOT.	ACTUAL									0.01	0.01	0.016	0.02	0.014	
MG/L (ZNUT)	REQUIREMENT									1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Noranda Inc., Lyon Lake Division
Sturgeon Lake Area,
District of Thunder Bay

IMIS NO.: 0042110114

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining , Smelting, Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Lyon Lake
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Ore is removed from underground and open pit for zinc recovery at Mattabi Mines Ltd.

EFFLUENT CHARACTERISTICS: Treated minewater contains dissolved metals of copper, zinc, lead, etc.

EFFLUENT TREATMENT: Lime precipitation of dissolved metals, settling of metal hydroxide precipitates.

DISCHARGE TYPE: continuous decanting

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Performance assessed by 'Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981'

EXCEEDANCES: None. Company has met its guideline objectives.

REMEDIAL ACTIONS:

COMMENTS: Three trout bioassays conducted on the final effluent in 1988 were 47.3%, 40.1% and >100%, based on the percentage effluent required to kill 50% of the test fish by the end of the four days exposure. Company expects to cease operations in 1990.

07/31/89

004211-01-1(4) NORANDA INC IGNACE REPORT DATE: 15 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
IRON UNF.TOT.	ACTUAL	0.24	0.13	0.11	0.28	0.23	0.34	0.04	0.5	0.12	0.17	0.13	0.04	0.194	
MG/L (FEUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	10.25	9.73	9.69	9.35	9.74	9.15	9.46	8.1	10.07	10.54	9.94	10.15	9.68	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	8.5	5.5	6	3.5	5	7.4	11	7	3	8	6.5	6	6.45	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL	0.39	0.19	0.11	0.34	0.17	0.17	0.48	0.83	0.34	0.14	0.17	0.11	0.287	
MG/L (ZNUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Noranda Minerals Inc. GECO Div.
& PLANT LOCATION: Manitouwadge

IMIS NO.: 0001800002

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Mose Lake
INDIRECT: 154 km to Lake Superior

DESCRIPTION OF ACTIVITY: Base metal mining.

EFFLUENT CHARACTERISTICS: Contains suspended solids, heavy metals, and ammonia.

EFFLUENT TREATMENT: pH adjustment and clarification of metal precipitates from tailing area and seepage.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Yes. Ammonia and suspended solids.

REMEDIAL ACTIONS: Larger capacity sludge pumps are to be installed in 1989 to overcome S.S. exceedances. Amendments to the C of A in 1989 will require studies on ways to decrease ammonia levels.

COMMENTS: An ammonia reduction program implemented in 1987 is expected to show reductions in effluent discharges at some point in the future.

Four trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 12.5% to 21.4%.

07/31/89

000180-00-0(2) NORANDA MINES LIMITED GECO DIV. MANITOUWADGE REPORT DATE: 26 JUNE 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3470	3630	3800	4440	5390	5240	3630	3970	3760	3880	3470	3290	3998	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.29	0.19	0.7	0.15	0.73	0.16	0.08	0.17	0.2	0.29	0.29	0.36	0.301	
MG/L (CUUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL	0.27	0.5	0.28	0.45	0.25	0.23	0.4	0.55	0.65	0.33	0.41	0.49	0.401	
MG/L (FEUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NH3-N TOTAL	ACTUAL	58	57	61	33	40	41	59	66	66	71	76	65	58	
MG/L AS N (NNHTFR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	12
PH	ACTUAL	9.3	9.3	9.2	9.4	9	8.8	9.3	9.1	9.2	9	8.9	9	9.13	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	7	8	8	5	4	4	9	6	4	6	5	17	6.92	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	1
ZINC UNF.TOT.	ACTUAL	0.06	0.08	0.04	0.12	0.08	0.08	0.11	0.2	0.22	0.09	0.07	0.1	0.104	
MG/L (ZNUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 13 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Northern Wood Preservers Inc. Thunder Bay	IMIS NO.: 0001820000
MOE REGION:	Northwest	DISTRICT: Thunder Bay
INDUSTRIAL SECTOR:	Wood Preserving	SIC CODE: 251, 2591
RECEIVING WATERBODY:	DIRECT: Thunder Bay Harbour INDIRECT: Lake Superior	

DESCRIPTION OF ACTIVITY: Timber, ties and utility poles are treated with creosote or pentachlorophenol preservative.

EFFLUENT CHARACTERISTICS: Effluent contains low levels of phenols, pentachlorophenol and traces of dioxin.

EFFLUENT TREATMENT: Secondary activated sludge.

DISCHARGE TYPE: Continuous subsurface

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued in Nov. 1987 to control suspended solids, phenol and pentachlorophenol. Suspended solids (RSP) - 25 mg/L single day and 15 mg/L on 30 working day average. Phenol (PHNOL) - 30 ug/L single day and 15 ug/L on 30 working day average. Pentachlorophenol - 4000 ng/L single day and 2000 ng/L on 60 working day average.

EXCEEDANCES: Yes. 11 phenol non-compliance due to improper analytical method employed by company - Audit sample show acceptable levels. 5 suspended solids non-compliance due to plant upsets and improper sampling technique sloughing accumulated solids off clarifier wall.

REMEDIAL ACTIONS: The company changed analytical technique for phenols in October 1988 to correct false results. MOE audit samples show phenols in compliance at all times. In October 1988 the frequency of checking MLSS was increased to better control sludge wasting to correct S.S. exceedances.

COMMENTS:

Three trout bioassays in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

07/31/89

000182-00-0(0) NORTHERN WOOD PRESERVERS THUNDER BAY REPORT DATE: 26 JUNE 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
PHENOLS UNF-REAC	ACTUAL	209	260	195	184	213	167	158	174	170	90	30.1	14.4	155	
UG/L (PHNOL)	REQUIREMENT	20	20	20	20	20	20	20	20	20	20	20	20	20	11
RESIDUE PARTIC.	ACTUAL	14	16	16	9	10	4	16	12	21	22	6	9	12.9	
MG/L (RSP)	REQUIREMENT	15	15	15	15	15	15	15	15	15	15	15	15	15	5

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 16 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 33% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Norton Company
& PLANT LOCATION: Niagara Falls

IMIS NO.: 0001650001

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 357

RECEIVING WATERBODY: **DIRECT:** Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT CHARACTERISTICS: There are 4 discharges to the Welland River; results are a composite of all discharges.

EFFLUENT TREATMENT: Oil water separation, pH adjustment and solids precipitation on product process waste water are carried out.

DISCHARGE TYPE: continuous through a submerged outfall

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None. Company has met the guideline objectives.

REMEDIAL ACTIONS:

COMMENTS: Loadings are summation of all four sewer discharges.

Two trout bioassays in 1988 indicated the Sewer A&B combined effluent to have been non-acutely lethal to the test fish.

06/23/89

REPORT DATE: 05 AUG 89

NIAGARA FALLS

000165-00-0(1) NORTON COMPANY

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/5400 WELLAND RIVER.

INCLUDES CONTROL POINTS: 0100 0200 0300 0400

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8502	8502	9159.39	9453.89	5495.69	5495.69	9453.89	9453.89	9453.89	9682.79	9682.79	9682.79	8668	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7	7.3	7.1	7.3	7.5	7.8	7.8	7.8	7.8	7.9	7.3		
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1.96	22.89	38.58	13.51	0	0	0	3.96	25.77	110.524	47.61	18.7	23.6	
KG /DAY (RSP)	GUIDELINE	128	128	137	142	82.4	82.4	142	142	142	145	145	145	130	0

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: NOVACOR Ltd.
& PLANT LOCATION: Corunna
IMIS NO.: 0000380105

MOE REGION: Southwest
DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres
SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock from neighbouring petroleum refineries is converted into polyethylene

EFFLUENT CHARACTERISTICS: Contains organic compounds at trace levels

EFFLUENT TREATMENT: Physical.

DISCHARGE TYPE: batch discharge through an extended outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Nine monthly and annual exceedance of suspended solids (RSP).

REMEDIAL ACTIONS: Additional control equipment installed and commissioned to address suspended solids problem in 1988. The new control equipment is not achieving design efficencies. Enhancement is ongoing.

COMMENTS:

07/29/89

000038-01-0(5) NOVACOR CHEMICALS LTD. (FORMERLY UNION CARBIDE CAN SARNIA REPORT DATE: 05 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1900	2392	1619	2421	1681	1820	1796	1603	1741	1690	1503	1658	1819	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.3	7	7.4	7.3	7.6	8	8.3	8.1	7.3	7.1	6.9	6.7	7.42	
(PH)	GUIDELINE														0
K'DAHL N TOTAL	ACTUAL	3.56	7.17	2.2	3.3	4.33	3.19	2.74	2.72	3.35	1.56	0.98	0.58	2.97	
KG /DAY (NNTKUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.34	0.5	0.42	1.05	0.61	0.82	0.76	0.48	0.83	0.43	0.53	0.5	0.606	
KG /DAY (PPUT)	GUIDELINE	1.9	2.39	1.62	2.42	1.68	1.82	1.8	1.6	1.74	1.69	1.5	1.66	1.82	0
RESIDUE FILTERED	ACTUAL	374.2	424	344	435.7	532.2	396.1	400.4	344.1	367.7	345.2	308.2	322	383	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	40.6	94.7	36	207.3	290.4	57.8	128.3	24.8	25.5	34.4	13	22.2	81.2	
KG /DAY (RSP)	GUIDELINE	28.5	35.9	24.3	36.3	25.2	27.3	26.9	24	26.1	25.4	22.5	24.9	27.3	9
CARBON TOTAL	ACTUAL	15	14.6	17	19.5	8.2	11.9	4.5	2.9	7.1	18.4	14.2	14.4	12.3	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ogilvie Mills Ltd.
& PLANT LOCATION: Thunder Bay
IMIS NO.: 0000880005

MOE REGION: Northwest
DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Food and beverage
SIC CODE: 105

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: 3 km to Lake Superior (Thunder Bay)

DESCRIPTION OF ACTIVITY: Starch and gluten are separated from grain flour.

EFFLUENT CHARACTERISTICS: Contains suspended solids (wheat husk) and starches /glutens.

EFFLUENT TREATMENT: Secondary biological anaerobic / aerobic.

DISCHARGE TYPE: continuous surface

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (Dec 31, 1982) Control Order limits BOD5 to 900 kg/day.

CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A limits BOD5 to 900 kg/day, averaged over 30 working days. (Aug 30, 1985)

MOE OR FEDERAL GUIDELINES: MOE guideline for suspended solids (RSP)

EXCEEDANCES: Yes. Non-compliance with BOD5 requirement due to: 1- bypassing to avoid odour problems (April); 2- process upsets due to plant disinfections (March, December); 3- excessive production rate (May, June, October). Exceedance of suspended solids objective due to physical constraints of the system.

REMEDIAL ACTIONS: Production rate was cut to 94% in June 1988 to decrease overloading in the secondary treatment system that caused the BOD exceedances.

COMMENTS: Treatment plant is state-of-the-art for BOD effluent reduction. The gas train has been modified to allow biogas to be burned in the boiler. Steps are currently being taken to reduce the volume of effluent requiring treatment. Additional solids removal techniques are being studied.

Eight trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 3.2% to 24.0%.

07/31/89

000088-00-0(5) OGILVIE MILLS LTD. THUNDER BAY REPORT DATE: 26 JUNE 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1171	1101	1206	1237	1150	1160	870	990	1240	1150	1140	1030	1120	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	816	612	972	1636	1160	1140	820	840	780	930	790	1050	962	
KG /DAY (BOD5)	REQUIREMENT	900	900	900	900	900	900	900	900	900	900	900	900	900	6
RESIDUE PARTIC.	ACTUAL	2310	2247	2519	2531	1960	2190	1620	1540	1650	1810	1760	2150	2024	
KG /DAY (RSP)	GUIDELINE	17.6	16.5	18.1	18.6	17.3	17.4	13.1	14.9	18.6	17.3	17.1	15.5	16.8	12

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Omstead Foods Ltd.
& PLANT LOCATION: Wheatley
IMIS NO.: 0001050004

MOE REGION: Southwest
DISTRICT: Windsor

INDUSTRIAL SECTOR: Food and Beverage
SIC CODE: 102, 103, 1032

RECEIVING WATERBODY: DIRECT: Muddy Creek
INDIRECT: 1.0 km Lake Erie

DESCRIPTION OF ACTIVITY: Fish is processed and vegetables grown locally are processed/frozen.

EFFLUENT CHARACTERISTICS: Contains fish and vegetable processing waste (BOD, suspended solids).

EFFLUENT TREATMENT: Extended aeration system.

DISCHARGE TYPE: Continuous, when plant is operating, through an open outfall.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: Yes. Exceedance of BOD5, suspended solids (RSP), ammonia-nitrogen (NNHTUR) and total phosphorus (PPUT).

REMEDIAL ACTIONS: Poor effluent quality occurs primarily during the winter months. At the request of the Ministry an engineering study was carried out to identify specific operational problems contributing to the exceedances and develop remdial actions. Based on the engineering studies, the company submitted an Application for a Certificate of Approval and Pre-Design Report for upgrading the treatment works in May 1988. it is anticipated that a Certificate of Approval for the proposed works, estimated to cost $980,000.00 will be issued in September 1989 with detailed engineering design and construction to follow.

COMMENTS:

07/29/89

000105-00-0(4)   OMSTEAD FOODS LIMITED   WHEATLEY   REPORT DATE: 01 AUG 89
CONTROL POINT: 0300 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3496	3551	3260	3359	2654	4555	5483	7057	7472	7706	6282	4384	4938	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	105.5	79.4	67.3	206.3	70	50.7	26.8	48.2	33.1	40.3	47.8	51.7	68.9	
KG /DAY (BOD5)	GUIDELINE	52.4	53.3	48.9	50.4	39.8	68.3	94.8	106	76.8	116	94.2	77.5	73.1	5
NH3-N TOTAL	ACTUAL	9	4.4	50.3	95.9	107	1.9	2	2.4	3.3	3.6	1.7	1	23.5	
KG /DAY (NNHTUR)	GUIDELINE	35	35.5	32.6	33.6	26.5	45.5	63.2	70.6	51.2	77.1	62.8	51.6	48.8	3
PH	ACTUAL	7.1	7.1	7.3	7.2	7.1	6.8	7.2	6.95	7.3	7.4	7.55	7.35	7.2	0
(PH)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	4.4	1.9	4.5	2.8	4	2.5	0.6	3.2	0.6	0.9	0.9	0.8	2.26	
KG /DAY (PPUT)	GUIDELINE	3.5	3.55	3.26	3.36	2.65	4.56	6.32	7.06	5.12	7.71	6.28	5.17	4.88	3
RESIDUE PARTIC.	ACTUAL	189.6	98	104.2	262.5	102.7	91.4	42	65.2	62.7	63.2	82.3	102.3	106	
KG /DAY (RSP)	GUIDELINE	52.4	53.3	48.9	50.4	39.8	68.3	94.8	106	76.8	116	94.2	77.5	73.1	7

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 18 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 70% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ontario Hydro Atikokan TGS
& PLANT LOCATION: Atikokan

IMIS NO.: 0001842301

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Snow Lake
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Hot water, temperature

EFFLUENT TREATMENT: Neutralization, Clarification, Filtration.
Sewage to primary lagoons.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes. Temperature rise limits are 11.2° C from May to October and 16.6° C from November to April.

EXCEEDANCES: None. Company has met the guideline limits.

REMEDIAL ACTIONS:

COMMENTS: Currently in negotiations with Ontario Hydro to establish maximum effluent temperature limits and sampling locations.

07/31/89

000184-19-0(7) ONTARIO HYDRO ATIKOKAN TGS. REPORT DATE: 27 JUNE 89
CONTROL POINT: 0100 DATA FOR 1988

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW MILLION	ACTUAL	0.59	0.55	0.61	0.53	0.65	0.64	0.50	0.75	0.16	0.58	0.56	0.61	0.56	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	11.00	14.00	4.70	14.00	24.00	28.00	32 75	32.00	28.00	22.00	13.00	11.00	19.54	
DEG.C (FWTEMP)	GUIDELINE														
TEMP RISE	ACTUAL	10.00	13.00	4.50	11.00	11.00	11.00	8.90	11.00	11.00	10.75	11.00	11.00	10.35	
DEG.C (FWTINC)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: PH LIMIT 5.5-9.5. 0* INDICATES INTAKE EXCEEDED DISCHARGE. S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ontario Hydro Bruce Nuclear Power Development Services (BNPDS) IMIS NO.: 0001840107
& PLANT LOCATION: Sewage Treatment Plant
Tiverton

MOE REGION: Southwest DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Electric Power Generation SIC CODE: 4999

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Plant treats sanitary wastes from the generating station comple. Also receivex laundry waste and oily wastes.

EFFLUENT CHARACTERISTICS: Contains phosphorus, BOD and suspended solids

EFFLUENT TREATMENT: Secondary sewage treatment with phosphorus removal.

DISCHARGE TYPE: Continuous to Douglas Point outfall.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000184-02-1(4) ONTARIO HYDRO BRUCE REPORT DATE: 07 JUNE 89
NPD NGS - SEWAGE PROCESSING

FLOW/LOADINGS	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE	EXCEEDANCES
FLOW	ACTUAL	51546	84916	103825	35981	74790	68995	91098	91579	63459	57649	34679	23675	65183.00	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	175.20	50.90	155.70	75.60	29.90	86.20	91.10	100.70	139.60	69.20	58.90	66.20	91.60	
KG/DAY (BOD5)	GUIDELINE	773.10	1273.70	1557.30	539.00	1121.80	1034.90	136.60	1374.00	951.80	864.70	520.20	355.10	875.18	0
KJELDAHL	ACTUAL	46.30	59.40	72.70	21.60	74.70	41.40	54.60	45.79	38.10	34.60	24.30	18.90	44.37	
KG/DAY (NNKUR)	GUIDELINE														
PHOSPHORUS	ACTUAL	15.40	16.90	20.70	7.20	14.90	6.90	18.20	18.30	12.70	11.50	13.80	7.10	13.63	
KG/DAY (PPUT)	GUIDELINE	51.55	84.92	103.83	35.98	74.79	69.00	91.10	91.58	63.46	57.65	34.68	23.67	65.18	0
PH	ACTUAL	7.30	7.00	6.70	6.90	6.70	6.70	7.00	7.10	7.20	7.30	7.10	7.00	7.00	0
(PH)	GUIDELINE														
RESIDUE FILTERED	ACTUAL														
KG/DAY (RSF)	GUIDELINE														
RESIDUE PARTICUL	ACTUAL	448.40	339.60	155.70	86.30	164.50	117.30	191.30	338.80	241.10	265.20	211.50	149.10	225.73	
KG/DAY (RSP)	GUIDELINE	773.10	1273.70	1557.30	539.00	1121.00	1034.90	136.60	1374.00	951.80	864.70	520.20	355.10	875.12	0

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ontario Hydro Nuclear Powered Thermal
& PLANT LOCATION: Bruce Generating Stns. A & B
Tiverton

IMIS NO.: 0001942507

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4999

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Nuclear Power Generation
EFFLUENT CHARACTERISTICS: Temperature

EFFLUENT TREATMENT: Neutralization, RLWMS Tanks, Oily Water Separaters..

DISCHARGE TYPE: Continuous (once-through condenser cooling water)

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Temperature Rise guideline is 11.1 ^{0}C from middle of month of April to the middle of the month of December. The rest of the year the guideline is 13.0 ^{0}C.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

000184-02-0(6) ONTARIO HYDRO BRUCE REPORT DATE: 06 JUNE 89

BRUCE NGS - A

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE	EXCEEDANCES
FLOW	ACTUAL	12182400	11467000	10962432	11378016	12839040	12357792	9832320	12018240	10644480	9806400	9745900	9961900	10185000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	8.4	9.98	8.89	12.54	15.68	19.83	23.60	26.80	23.90	19.60	15.80	11.70	16.41	
DEG.C (FWTEMP)	GUIDELINE	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	0
TEMP RISE	ACTUAL	7.53	9.2	8.36	8.28	9.36	10.00	8.60	8.10	5.70	7.90	7.60	8.60	8.27	
DEG.C (FWTINC)	GUIDELINE	13.00	13.00	13.00	S/C	11.10	11.10	11.10	11.10	11.10	11.10	11.10	S/C		0

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

000184-02-1(4) ONTARIO HYDRO BRUCE REPORT DATE: 06 JUNE 89

BRUCE NGS - B

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE	EXCEEDANCES
FLOW	ACTUAL	15405120	16420320	16493760	15410304	13858560	15223680	16450560	16372800	16459200	16234500	14938500	16476400	15811000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	11.74	11.41	11.33	12.54	15.43	16.3	23.70	26.70	25.80	20.60	17.00	12.60	17.10	
DEG.C (FWTEMP)	GUIDELINE	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	0
TEMP RISE	ACTUAL	9.56	9.30	9.05	8.3	8.56	6.40	8.30	8.30	8.70	7.20	7.70	8.10	8.29	
DEG.C (FWTINC)	GUIDELINE	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	0

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Ontario Hydro Bruce Heavy Water Plant Tiverton	IMIS NO: 0001840107
MOE REGION:	Southwest	DISTRICT: Owen Sound
INDUSTRIAL SECTOR:	Electric Power Generation	SIC CODE: 4911
RECEIVING WATERBODY:	DIRECT: Lake Huron INDIRECT:	

DESCRIPTION OF ACTIVITY: Heavy water is produced for use in nuclear reactors.

EFFLUENT CHARACTERISTICS: Temperature and dissolved hydrogen sulphide.

EFFLUENT TREATMENT: Aeration/oxidization lagoon, sedimentation, steam stripping

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000184-02-0(6) ONTARIO HYDRO BRUCE REPORT DATE: 07 JUNE 89

BRUCE HEAVY WATER PLANT

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE	EXCEEDANCES
FLOW	ACTUAL	1607040	1713312	1703808	1615680	1200096					1645747	1698364	1720742	1613000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	11.21	9.21	8.47	8.92	7.51					16.29	16.92	13.27	11.48	
DEG.C (FWTEMP)	GUIDELINE	32.20	32.20	32.20	32.20	32.20					32.20	32.20	32.20	32.20	0
TEMP RISE	ACTUAL	7.34	8.35	7.71	5.58	1.76					2.9	7.47	9.42	6.31	
DEG.C (FWTINC)	GUIDELINE	11.10	11.10	11.10	11.10	11.10					11.10	11.10	11.10	11.10	0
SULPHIDES	ACTUAL	3.11	2.77	3.78	21.11	3.36					3.05	7.50	3.46	6.02	
H2S KG/DAY	GUIDELINE	215.00	215.00	215.00	215.00	215.00					215.00	215.00	215.00	215.00	0

NOTE: PH LIMIT 5.5-9.5. 0* INDICATES INTAKE EXCEEDED DISCHARGE. S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 36. FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Ontario Hydro - Lakeview TGS, Toronto

IMIS NO.: 0001843101

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Electrical Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station

EFFLUENT CHARACTERISTICS: Temperature.

EFFLUENT TREATMENT: Settling lagoon, filtration, neutralization, oily water separators, recycling.

DISCHARGE TYPE: Continuous (once-through condenser cooling water)

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

One trout bioassay in 1988 indicated the Boiler Blowdown water to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 80.6%.

07/22/89

000184-31-0(1) ONTARIO HYDRO LAKEVIEW TGS, TORONTO REPORT DATE: 01 JUNE 89

CONTROL POINT: 0100 DATA FOR 1988

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL														
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL									26	22	16	13	19.3	
DEG.C (FWTEMP)	GUIDELINE									32.2	32.2	32.2	32.2	32.2	0
TEMP RISE	ACTUAL									9	10	10.8	11	10.2	
DEG.C (FWTINC)	GUIDELINE									11.1	11.1	11.1	11.1	11.1	0

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 8, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Ontario Hydro - Lennox TGS, South Fredericksburg

IMIS NO.: 0001843309

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Electrical Power Generation

SIC CODE: 4911

RECEIVING WATERBODY:
DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Oil fired thermal generating station

EFFLUENT CHARACTERISTICS: temperature, oil

EFFLUENT TREATMENT: Dissolved air flotation, oily water separation, "API Type" separators on yard drainage, neutralization.

DISCHARGE TYPE: Continuous (once through condensor cooling water)

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None company has met its guideline objectives.

REMEDIAL ACTIONS:

COMMENTS:

09/8/89

000184-33-0(9) ONTARIO HYDRO LENNOX TGS REPORT DATE: 28 SEP 89

CONTROL POINT: 0100 DATA FOR 1988

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE	EXCEEDANCES
FLOW	ACTUAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
M3 /DAY (FTFLOW)															
WATER TEMP	ACTUAL		6.0	5.0	4.0		20.0	24.0	27.8	22.3	24.5	17.0	13.3	16.4	
DEG.C (FWTEMP)	GUIDELINE		32.2	32.2	32.2		32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP RISE	ACTUAL		6.0	5.0	4.0		10.0	11.0	10.3	5.3	9.5	9.0	10.0	8.0	
DEG.C (FWTINC)	GUIDELINE		11.1	11.1	11.1		11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0

NOTE: PH LIMIT 5.5-9.5. 0* INDICATES INTAKE EXCEEDED DISCHARGE. S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Ontario Hydro Lambton TGS Courtright	IMIS NO.: 0001841204
MOE REGION:	Southwest	DISTRICT: Sarnia
INDUSTRIAL SECTOR:	Electric Power Generation	SIC CODE: 4911
RECEIVING WATERBODY:	DIRECT: St. Clair River INDIRECT:	

DESCRIPTION OF ACTIVITY: Coal isfired through generating station

EFFLUENT CHARACTERISTICS: Hot water, temperature

EFFLUENT TREATMENT: Settling lagoon, neutralization, filtration.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes

EXCEEDANCES: Three monthly exceedances of rise in temperature and two monthly exceedance of maximum temperature.

REMEDIAL ACTIONS:

COMMENTS: Ontario Hydro to modify procedures to compensate for a wider range of intake water temperature.

07/29/89

REPORT DATE: 20 OCT 89

000184-12-0(4) LAMBTON THERMAL GENERATING STATION CORUNNA

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2786000	3635000	1724000	1889000	2345000	2292000	2180000	2988000	2796000	2128000	2994000	2739000	2000000	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0	0*	1897	0*	2111	0*	0*	0*	280	0*	0*	0*	0*	
KG /DAY (RSP)	GUIDELINE	41790	54525	25860	28335	35175	34380	32700	44820	41940	31920	44910	41085	38120	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

CONTROL POINT: 0200 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
WATER TEMP	ACTUAL	18.9	19.1	18.6	19.8	25	31.4	35.2	35.5	28.8	28.1		20.9	25.6	
DEG.C (FWTEMP)	GUIDELINE	32.5	32.5	32.5	32.5	32.5	35	35	35	35	32.5		32.5	33.4	2
TEMP RISE	ACTUAL	18.3	18.6	17.1	14	13.9	13.7	13.6	12.5	9.2	9		14.7	14.1	
DEG.C (FWTINC)	GUIDELINE	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7		16.7	16.7	3

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 77% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Ontario Hydro NanticokeTGS Nanticoke	IMIS NO.: 0001840008
MOE REGION:	West Central	DISTRICT: Haldimand-Norfolk/Brant
INDUSTRIAL SECTOR:	Electric Power Generation	SIC CODE:4911
RECEIVING WATERBODY:	DIRECT: Lake Erie INDIRECT:	

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, pH, SO4

EFFLUENT TREATMENT: Primary and secondary ash settling cells, primary and secondary settling lagoons, neutralization.

DISCHARGE TYPE: Continuous ask lagoons effluent

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-0206-70-006 and revised Nov. 27, 1985.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Water quality data applies to effluent from ash lagoon only. Wastewater from lagoon is mixed with condenser cooling water prior to discharge.

07/22/89

000184-00-0(8) ONTARIO HYDRO NANTICOKE TGS NANTICOKE REPORT DATE: 10 MAY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	50194	66034	41000	35900	41032	41200	37645	35839	27533	39161	62133	46326	39806	
M3 /DAY (FTFLOW)	REQUIREMENT														
CHROMIUM UNF.TOT.	ACTUAL	1.5	1.32	1.07	0.754	0.903	1.154	0.753	0.717	0	0	1.118	0	0.774	
KG /DAY (CRUT)	REQUIREMENT	5.02	6.6	0.004	3.59	4.1	4.12	3.76	3.58	2.75	3.92	6.21	4.63	4.03	1
IRON UNF.TOT.	ACTUAL	0*	0*	0*	1.795	2.052	2.06	0*	0	0	0	0	0	0*	
KG /DAY (FEUT)	REQUIREMENT	25.1	33	0.021	18	20.5	20.6	18.8	17.9	13.8	19.6	31.1	23.2	20.1	0
PHOSPHOR UNF.TOT.	ACTUAL	0.5	0.66	0.369	0.359	0.205	0.206	0.264	0.179	0.413	0.235	0.746	0.602	0.395	
KG /DAY (PPUT)	REQUIREMENT	5.02	6.6	0.004	3.59	4.1	4.12	3.76	3.58	2.75	3.92	6.21	4.63	4.03	1
RESIDUE FILTERED	ACTUAL	20067	32732	18647	10429	11453	10982	10810					21673	17099	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0*	62.7	0*	132.8	87	22.7	14.1	30.1	0	0	0	0	0*	
KG /DAY (RSP)	GUIDELINE	753	991	0.615	538	615	618	565	538	413	587	932	695	604	0
SULPHATE UNF.REAC	ACTUAL	10075	14864	8867	6446	6812	7285	7033						8769	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Ontario Hydro Nanticoke TGS Nanticoke	IMIS NO.: 0001840008
MOE REGION:	West Central	DISTRICT: Haldimand-Norfolk/Brant
INDUSTRIAL SECTOR:	Electric Power Generation	SIC CODE: 4911
RECEIVING WATERBODY:	DIRECT: Lake Erie INDIRECT:	

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Lake water for cooling purpose has no contact with any process pipes, but ash lagoon effluent discharged into once through condensor coling water. A temperature increase does result.

EFFLUENT TREATMENT: Neutrolization, oily water separation

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-106-70-006

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: * Nanticoke TGS Tempering Exemption in effect July 1, 1983, and extended until July 1, 1990.

07/22/89

000184-00-0(8)   ONTARIO HYDRO NANTICOKE TGS   NANTICOKE   REPORT DATE: 10 MAY 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9100000	12500000	83700000	74600000	89800000	65900000	75800000	7400000	5500000	6300000	9200000		30000000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	8.7	9.3	8.6	8.7		18.2	21.9	26.8	24.7	18.6	14.4	8.8	15.3	
DEG.C (FWTEMP)	GUIDELINE	35	35	35	35		35	35	35	35	35	35	35	35	0
TEMP RISE	ACTUAL	7.9	9.1	8	5.2	5.8	7.3	6.8	6.6	6.6	6.3	6.6	6.2	6.87	
DEG.C (FWTINC)	GUIDELINE	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ontario Hydro Pickering Nuclear Powered Generating Stns. A&B.
& PLANT LOCATION: Pickering

IMIS NO.: 0001840206 (A)
0001840214 (B)

MOE REGION: Central

DISTRICT: Toronto

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 572

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Nuclear Power Generation

EFFLUENT CHARACTERISTICS: Temperature

EFFLUENT TREATMENT: Neutralization, RLWMS Tanks, Oily Water Separators.

DISCHARGE TYPE: Continuous (once through condenser cooling water)

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (A) July 27, 1971; (B) June 11, 1981

MOE OR FEDERAL GUIDELINES:

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

05/02/89

000184-02-0(6) ONTARIO HYDRO STATION A PICKERING REPORT DATE: 20 OCT 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		9000000	9000000	6200000	7500000	6900000	7100000	7100000	7100000	6590000	8480000	7100000	7000000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	13.2	19.8	22.7	12.8	14.5	20.1	25.6	26.9	23.6	22.4	16.9	16.8	19.6	
DEG.C (FWTEMP)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP RISE	ACTUAL	6.3	8.6	8.2	6.8	9.7	9.8	9	8.6	9.9	9.1	9.1	10.4	8.79	
DEG.C (FWTINC)	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

000184-02-1(4) ONTARIO HYDRO STATION B PICKERING REPORT DATE: 20 OCT 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10100000	10000000	98C0000	10600000	8100000	7800000	10200000	10600000	10600000	10560000	10530000	10400000	9000000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	16.8	17.6	17.5	18.4	19.2	18.8	25.2	26.8	23.5	22.3	18.8	17.5	20.2	
DEG.C (FWTEMP)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP RISE	ACTUAL	10.9	10.8	10.3	10.1	9.6	10.4	9.7	9.9	10.3	10.4	9.5	10.1	10.2	
DEG.C (FWTINC)	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Ontario Hydro Thunder Bay, TGS
& PLANT LOCATION: Thunder Bay

IMIS NO.: 0001841907

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired Thermal Generating Station

EFFLUENT CHARACTERISTICS: Hot water, temperature

EFFLUENT TREATMENT: Coagulant aid, sedimentation., neurolization, filtration

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

07/31/89

000184-19-0(7) ONTARIO HYDRO THUNDER BAY TGS. REPORT DATE: 27 JUNE 89

CONTROL POINT: 0100 DATA FOR 1988

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW MILLION	ACTUAL	1.05	1.21	0.87	1.01	0.69	1.05	1.11	1.08	1.47	0.59	0.94	0.90	1.00	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	9.50	9.00	9.00	16.00	20.00	23.00	27.00	28.00	24.00	19.00	11.30	8.00	16.98	
DEG.C (FWTEMP)	GUIDELINE	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	32.20	0
TEMP RISE	ACTUAL	9.50	9.00	9.00	9.00	9.00	9.50	7.00	7.00	7.00	8.00	7.50	7.80	8.28	
DEG.C (FWTINC)	GUIDELINE	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	0

NOTE: PH LIMIT 5.5-9.5. 0* INDICATES INTAKE EXCEEDED DISCHARGE. S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 TIMES OUT OF 24. FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: ORENCO (Ontario Rendering)
& PLANT LOCATION: Dundas
IMIS NO.: 0041670001

MOE REGION: West Central
DISTRICT: Hamilton

INDUSTRIAL SECTOR: Food and Beverage
SIC CODE: 1010, 1050, 5210

RECEIVING WATERBODY: DIRECT: Spencer Creek to Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Animal waste processing to produce tallow and meat meal.

EFFLUENT CHARACTERISTICS: Animal fats, manure, blood (ammonia, suspended solids, phosphorus, BOD, solvent extractables)

EFFLUENT TREATMENT: Conventional sewage treatment plant with polishing lagoon.

DISCHARGE TYPE: Seasonal discharge: No discharge for months of May to October inclusive in 1988.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE guidelines.

EXCEEDANCES: 2 monthly exceedances for suspended solids (RSP).

REMEDIAL ACTIONS: High suspended solids due to runoff/erosion from fields upstream of sampling point. Sampling procedures are being changed prior to next discharge peirod (seasonal discharge) to better reflect actual effluent quality.

COMMENTS:

07/22/89

004167-00-0(1)   ORENCO (ONTARIO RENDERING)   DUNDAS   REPORT DATE: 01 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1112	1112	1112	1112							1243	1570	1210	
M3 /DAY (FTFLOW)	REQUIREMENT														
BOD 5 DAY	ACTUAL	10	7.5	10	10							5	5	7.92	
MG/L AS O (BOD5)	GUIDELINE	15	15	15	15							15	15	15	0
NH3-N TOTAL	ACTUAL	1	0.85	0.45	0.33							1.7	1.7	1.005	
MG/L AS N (NNHTFR)	GUIDELINE	10	10	10	10							10	10	10	0
PH	ACTUAL	7.4	7.7	7.15	7.5							7.3	7.3	7.39	0
(PH)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	1.6	2.3	1.35	1.95							1.13	1.3	1.61	
MG/L (PPUT)	REQUIREMENT	4.54	4.54	4.54	4.54							4.54	4.54	4.54	0
RESIDUE PARTIC.	ACTUAL	10	28.5	4.5	28							5	5	13.5	
MG/L (RSP)	GUIDELINE	15	15	15	15							15	15	15	2
SOLVENT EXTRACT.	ACTUAL		10	3	0.4							5		4.6	
MG/L (SOLEXT)	GUIDELINE		10	10	10							10		10	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 25. FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Petro-Canada Products Ltd.
& PLANT LOCATION: Mississauga

IMIS NO.: 0000130104

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 365

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Activated sludge. Once through cooling water receives gravity separation before discharge. Process, ballast and essentially all storm water receive primary treatment, filtration on dual media and secondary treatment before diacharge.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario Effluent Quality Objectives for Petroleum Refineries.

EXCEEDANCES: Exceeded phenol objective once.

REMEDIAL ACTIONS:

COMMENTS: Phenol exceedance in January due to equipment malfunction. The values listed on the data sheet for Phenols and Solvent Extractables are sums taken from sampling point 0100 and 0200. All other parameter values are for sample point 0100 exclusively. Storm water is being discharged through the water effluent treatment plant.

In 1988, two trout bioassays indicated that both the cooling water effluent, and the process effluent, to have been non-acutely lethal to the test fish.

07/22/89

000013-01-0(4) PETRO-CANADA INC. (CLARKSON REFINERY) MISSISSAUGA REPORT DATE: 17 OCT 89
SUMMARY FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO
INCLUDES CONTROL POINTS: 0100 0200
DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8087.48	10010.4	10924.3	9360.39	7737.44	7432.85	10215	8246.6	8910.33	9274.01	9955.93	9174	9111	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.345	7.5	7.6	7.7	7.6	7.7	7.6	8.24	7.8	8.21	7.82	7.61	7.73	
(PH)	GUIDELINE														0
NH3-N FIL.REAC	ACTUAL	10.3659	4.302	5.36	4.57	3.14	14.54	26.24	23.79	1.95	1.53	2.09	11.9	9.15	
KG /DAY (NNH3FR)	GUIDELINE	80.9	100	109	93.6	77.4	74.3	102	82.5	89.1	92.7	99.6	91.7	91.1	0
PHENOLS UNF-REAC	ACTUAL	0.348	0.05	0.042	0.091	0.057	0.065	0.09	0.07	0.036	0.04	0.079	0.15	0.093	
KG /DAY (PHNOL)	GUIDELINE	0.162	0.2	0.219	0.187	0.155	0.149	0.204	0.165	0.178	0.186	0.199	0.184	0.182	1
RESIDUE PARTIC.	ACTUAL	97.5529	106.9	95.28	94.09	90.13	65.47	84.91	119.579	96.55	81.11	99.05	187.229	101	
KG /DAY (RSP)	GUIDELINE	121	150	164	140	116	111	153	124	134	139	149	138	137	1
SOLVENT EXTRACT.	ACTUAL	36.7679	34.3	31.73	35.49	24.94	17.96	28.46	26.92	15.94	14.75	11.04	38.4	26.4	
KG /DAY (SOLEXT)	GUIDELINE	80.9	100	109	93.6	77.4	74.3	102	82.5	89.1	92.7	99.6	91.7	91.1	0
SULPHIDE FIL.REAC	ACTUAL	0.266							0.51	0.464	0.21	0.412	0.87	0.455	
KG /DAY (SSIDFR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Petro-Canada Products Ltd.
& PLANT LOCATION: Oakville

IMIS NO.: 0000530006

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 365

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Activated sludge. Process water and some storm water receive both primary and secondary treatment before discharge.

DISCHARGE TYPE: Continous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario Effluent Quality Objectives for Petroleum Refineries.

EXCEEDANCES: Residue particulate exceeded on 11 occasions in 1988.

REMEDIAL ACTIONS: A major modification to the existing wastewater effluent treatment plant involving additional clarifiers, new dual media filters and aeration basins is scheduled to be completed in September 1989 and in full operation by December 31, 1989. The modifications should bring this source in compliance.

COMMENTS: One trout bioassay in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

07/22/89

000053-00-0(6)   PETRO-CANADA INC. (TRAFALGAR REFINERY)   OAKVILLE   REPORT DATE: 18 SEP 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6487.26	6114.49	5896.27	4014.19	4323.33	5609.87	5796.26	6232.68	3955.09	5178	4264.23	4223.31	5175	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.35	7.4	7.25	7.35	7.2	7.7	7.4	7.3	7.4	7.6	8.1	7.45	
(PH)	GUIDELINE														0
NH3-N FIL.REAC	ACTUAL	36	18.7	26.7	23.8	30.6	27.1	20.1	21	12.1	31.7	34.7	30.9	26.1	
KG /DAY (NNH3FR)	GUIDELINE	64.9	61.1	59	40.1	43.2	56.1	58	62.3	39.6	51.8	42.6	42.2	51.7	0
PHENOLS UNF-REAC	ACTUAL	0.15	0.23	0.12	0.13	0.11	0.12	0.17	0.1	0.07	0.12	0.16	0.24	0.143	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	147.2	135.4	91.3	90.5	117.6	191.8	124.3	132.8	95.4	134.1	85.5	53	117	
KG /DAY (RSP)	GUIDELINE	97.3	91.7	88.4	60.2	64.8	84.1	86.9	93.5	59.3	77.7	64	63.3	77.6	11
SOLVENT EXTRACT.	ACTUAL	9.3	11.1	7.9	5	5.5	10.2	9	9.3	10	11.8	6	36.5	11	
KG /DAY (SOLEXT)	GUIDELINE	64.9	61.1	59	40.1	43.2	56.1	58	62.3	39.6	51.8	42.6	42.2	51.7	0
SULPHIDE FIL.REAC	ACTUAL	3.9											0.4	2.15	
KG /DAY (SSIDFR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 77% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Petrosar Ltd.
& PLANT LOCATION: Corunna

IMIS NO.: 0000480004

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Primary function to provide feedstock for Dupont, Polysar and NOVACOR. Also propane and other fuels.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble compounds from crude oil at parts per billion level.

EFFLUENT TREATMENT: Tertiary treatment diffused outfall.

DISCHARGE TYPE: continuous through a submerged diffuser

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes

EXCEEDANCES: None.

REMEDIAL ACTIONS: None required as company meets its guidelines.

COMMENTS: MISA program in monitoring phase which may lead to upgrading.

07/29/89

000048-00-0(4) PETROSAR LIMITED SARNIA REPORT DATE: 20 OCT 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4091.4	4091.4	5046.1	4136.9	4591.5	4955.1	5500.7	5818.9	4818.8	4455.1	5864.3	4864.8	4853	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.7	7.8	7.9	7.7	7.9	7.9	8.1	8.1	7.8	7.8	7.7	7.84	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	6	17	3	5	6	4	4	4	4	3	4	2	5.17	
KG /DAY (NNHTFR)	GUIDELINE	40.9	40.9	50.5	41.4	45.9	49.6	55	58.2	48.2	44.6	59	48.6	48.6	0
PHENOLS UNF-REAC	ACTUAL	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.02	0.03	0.03	0.023	
KG /DAY (PHNOL)	GUIDELINE	0.082	0.082	0.101	0.083	0.092	0.099	0.11	0.116	0.096	0.089	0.117	0.097	0.097	0
RESIDUE PARTIC.	ACTUAL	22	21	16	3	21	32	6	27	7	16	24	65	21.7	
KG /DAY (RSP)	GUIDELINE	61.4	61.4	75.7	62.1	68.9	74.3	82.5	87.3	72.3	66.8	88	73	72.8	0
SOLVENT EXTRACT.	ACTUAL	1	0.02	0	1	0	0	0	1	1	0	0	11	1.25	
KG /DAY (SOLEXT)	GUIDELINE	61.4	61.4	75.7	62.1	68.9	74.3	82.5	87.3	72.3	66.8	88	73	72.8	0
CARBON TOTAL	ACTUAL	17	13	22	6	13	19	26	31	26	27	25	188	34.4	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Placer-Dome Inc. - Campbell Red Lake Mine
Balmerton
Township Golden

IMIS NO.: 0043440007

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE:

RECEIVING WATERBODY: DIRECT: Balmer Creek - Chukuni River
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Lime precipitation of heavy metals and arsenic, primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewaters when necessary for cyanide degradation to requirements.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-058-86-006, issued August 22, 1986, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc, and suspended solids.

EXCEEDANCES: Yes. Arsenic two out of twelve months.

REMEDIAL ACTIONS: Fall discharges were slightly in excess of criteria. Discharges are necessary to ensure that retention is available to prevent the release of lethal cyanide levels during fish spawning periods in early spring. Criteria exceedances are being investigated by the company.

COMMENTS: The effluent discharge point is shared with Dickenson Mines Ltd., thus the loadings and comments for the two are identical. Effluent discharges occurred on 69 days of the year (19%). Monthly averages are based on the mean of the daily data for those days in the month on which the discharges occurred.

Seven trout bioassays conducted in 1988 indicated the final effluent is usually not acutley lethal to the test fish. Two samples collected during flow events had 96 hour LC50s of greater than 100%. Two of five samples collected when effluent was not being released had 96 hour LC50s of greater than 100%, while the remaining results were < 10%, 42%, and 58.6%.

07/31/89

004344-00-0(7)   PLACER-DOME INC. CAMPBELL RED LAKE MINE   BALMERTOWN   REPORT DATE: 27 JUNE 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	0	0	0	3200	0	0	0	0	49300	39900	102501	67700	21883	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL				0.405					0.52	0.511	0.387	0.487	0.462	
MG/L (ASUT)	REQUIREMENT				0.5					0.5	0.5	0.5	0.5	0.5	2
CYANIDE AVAIL	ACTUAL				0.18					0.09	0.09	0.1	0.12	0.116	
MG/L (CCNAUR)	REQUIREMENT				2					2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL				0.267					0.497	0.475	0.453	0.478	0.434	
MG/L (CUUT)	REQUIREMENT				1					1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL				0.606					0.29	0.942	0.977	0.971	0.7572	
MG/L (NIUT)	REQUIREMENT				1					1	1	1	1	1	0
RESIDUE PARTIC.	ACTUAL				5.5					5	7	5	9	6.3	
MG/L (RSP)	REQUIREMENT				15					15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL				0.128					0.157	0.172	0.17	0.172	0.16	
MG/L (ZNUT)	REQUIREMENT				1					1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Placer - Dome Ltd.
& PLANT LOCATION: South Porcupine
IMIS NO.: 0001170000

MOE REGION: Northeast
DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
SIC CODE: 052, 0591

RECEIVING WATERBODY: DIRECT: Swamp
INDIRECT: South Porcupine River

DESCRIPTION OF ACTIVITY: Gold is recovered using Merryl-Crowe process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, lead, nickel and zinc.

EFFLUENT TREATMENT: Natural degradation.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Effluent criteria have been placed on the C. of A

MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None. company is in complaince.

REMEDIAL ACTIONS:

COMMENTS: The company has converted to the carbon-in-pulp milling process instituted water recirculation within the mill and reduced mill feed in an attempt to improve effluent quality prior to discharge. The tailings dam was also raised, therby increasing retention time.

In 1988, one trout bioassay indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 14.1%.

08/02/89

000117-00-0(0) PLACER DOME LTD. SOUTH PORCUPINE REPORT DATE: 07 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ALK TOTAL	ACTUAL	69	75	82.5	68.25	47.6	67.75	67.75						68.3	
MG/L AS CACO3	GUIDELINE														
CYANIDE FREE	ACTUAL	1.47	0.27	0.13	0.75	0.38	0.06	0.03						0.441	
MG/L (CCNFUR)	GUIDELINE	2	2	2	2	2	2	2						2	0
COPPER UNF.TOT.	ACTUAL	1.4	1.16	0.99	0.59	0.55	0.68	0.84						0.887	
MG/L AS CU	GUIDELINE														
IRON UNF.TOT.	ACTUAL	0.15	0.246	0.29	0.67	0.68	0.34	0						0.339	
MG/L AS FE	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL	0.59	0.6	0.59	0.24	0.26	0.32	0.38						0.426	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1						1	0
LEAD UNF.TOT.	ACTUAL	0.05	0.05	0.1	0	0.07	0.04	0.08						0.056	
MG/L AS PB	GUIDELINE	1	1	1	1	1	1	1						1	0
PH	ACTUAL	7.7	7.6	7.6	7.64	7.61	8.04	8.2						7.77	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	5.2	3.24	1.53	11.28	19.98	10.93	8.98						8.73	
MG/L (RSP)	GUIDELINE														
SULPHATE FIL.REAC	ACTUAL	205	192	242		7.64	135.2	303						181	
MG/L AS SO4	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.11	0.134	0.12	0.03	0.04	0.04	0.03						0.072	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1						1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Polysar Ltd.
& PLANT LOCATION: Sarnia

IMIS NO.: 0000030007

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

SIC CODE: 3712, 3731

RECEIVING WATERBODY:
DIRECT: Cole Drain, Tashmoo Drain
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: Feedstock from refineries in the Sarnia area are converted into several grades of synthetic rubber. Petrochemicals such as styrene.

EFFLUENT CHARACTERISTICS: Contains a variety of organics including chlorinated compounds.

EFFLUENT TREATMENT: Secondary treatment (ie biotreatment, ozone treatment.

DISCHARGE TYPE: continuous through five major outfalls

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None.

REMEDIAL ACTIONS: None required as company meets its guidelines.

COMMENTS:

07/29/89

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000003-00-0(7)      POLYSAR LIMITED                               SARNIA                                             REPORT DATE: 20 OCT 89
S U M M A R Y  FOR  EMIS. TYPE: 16   FINAL DISCHARGE - NET DATA   DISCHARGED INTO: 02/003/       LAKE ERIE
                    INCLUDES CONTROL POINTS:  0200 0400 0500 0600
                    DATA FOR 1988                                                                                                                ANNUAL       TOTAL
FLOW/LOADING        PARAMETERS        JAN       FEB       MAR       APR       MAY       JUN       JUL       AUG       SEP       OCT       NOV       DEC   AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                ACTUAL         319500    308761    304239    308627    312147    333741    306504    354946    358775    347785    348599    340543    328680
M3 /DAY (FTFLOW)    GUIDELINE

PH                  ACTUAL            7.5      7.65      7.65       7.6      7.55   7.63332      7.75       7.7      7.75       7.7       7.7      7.55      7.64
(PH )               GUIDELINE                                                                                                                                         0

NH3-N TOTAL         ACTUAL        29.9909   77.4047   89.5809   40.3443   85.5479   10.4569     3.077     8.861       0.4     0.907        0*   3.12289        29
KG /DAY (NNHTFR)    GUIDELINE        3195      3088      3042      3086      3121      3337      3065      3549      3588      3478      3486      3405      3287           0

PHENOLS UNF-REAC    ACTUAL       0.237805  0.125136  0.402128  0.864319     0.645  0.590059     0.329     0.169     0.755     0.187     0.218     0.143     0.389
KG /DAY (PHNOL )    GUIDELINE        6.39      6.18      6.08      6.17      6.24      6.67      6.13       7.1      7.18      6.96      6.97      6.81      6.57           0

RESIDUE PARTIC.     ACTUAL        2317.06   1658.81   730.202    97.873        0*        0*        0*        0*        0*        0*   116.779        0*        0*
KG /DAY (RSP )      GUIDELINE        4792      4631      4564      4629      4682      5006      4598      5324      5382      5217      5229      5108      4930           0

SOLVENT EXTRACT.    ACTUAL              9      4.56      0.94      0.87     20.94      1.42      1.17       0.8      2.29        0*         0      19.1     0.616
KG /DAY (SOLEXT)    GUIDELINE        4792      4631      4564      4629      4682      5006      4598      5324      5382      5217      5229      5108      4930           0

CARBON TOTAL        ACTUAL        1673.97   763.019   921.489   1150.77    1255.8   735.629   471.689   904.889   537.889   562.169   880.469   670.039       877
KG /DAY (TOC )      GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.5  - 9.5
**********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Quebec and Ontario Paper Company Ltd.
& PLANT LOCATION: Allanburg
Thorold
IMIS NO.: 0000930008

MOE REGION: West Central
DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper Mill
SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek
INDIRECT: 12.4 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Newsprint is made from debarked logs by three pulping processes (sulphite, thermal-mechanical and chemi-mechanical) and from deinked newspaper pulp.

EFFLUENT CHARACTERISTICS: Residual organics produces a foam in the Old Welland Canal.

EFFLUENT TREATMENT: Spent sulphite liquor is treated to produce saltcake, vanillin and alcohol. An oxygen high-rate system treats deinking effluent and condensates from sulphite pulping. A clarifier removes solids from high-solids wastewaters (note- cooling waters were separated from process wastewaters).

DISCHARGE TYPE: continuous into a buried part of the Old Welland Canal

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Feb 5, 1987. Requirements for suspended solids loadings is 6.8 tonnes/day and BOD5 is 18.14 tonnes/day.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

Four trout bioassays in 1988 indicated the final effluent tohave been non-acutely lethal to the test fish.

07/19/89

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000093-00-0(8)    QUEBEC AND ONTARIO PAPER COMPANY LTD.           .THOROLD                                                               REPORT DATE: 05 AUG 89
CONTROL POINT: 0100 DATA FOR 1988                                                                                                           ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS         JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL          83455    89616    85724    78204    81183    77666    74764    77501    72200    69817    71627    70338    77675
M3 /DAY (FTFLOW)    GUIDELINE

BOD 5 DAY             ACTUAL            400      300      400      500      700      500      400      800     1100      700     1400      900      675
KG /DAY (BOD5 )     REQUIREMENT       18140    18140    18140    18140    18140    18140    18140    18140    18140    18140    18140    18140    18140         0

                                                                                                                                             ANNUAL    TOTAL
CONTROL POINT: 0200 DATA FOR 1988
FLOW/LOADING        PARAMETERS         JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.       ACTUAL           4000     2600     1400     2100     2300     2200     2600     2300     2100     1800     2700     1300     2283
KG /DAY (RSP )      REQUIREMENT        6800     6800     6800     6800     6800     6800     6800     6800     6800     6800     6800     6800     6800         0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
****************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Rexwood Products Ltd.
& PLANT LOCATION: New Liskeard

IMIS NO.: 0008501007

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR:

SIC CODE: 2593

RECEIVING WATERBODY: DIRECT: Lake Timiskaming
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures particle board.

EFFLUENT CHARACTERISTICS: Leachate from woodwaste landfill site contains BOD, suspended solids and phenols.

EFFLUENT TREATMENT: Nil - leachate generation minimized by capping orginal fill area.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Leachate quality is regulated by Objectives for the Control of Industrial Waste Discharges in Ontario.

EXCEEDANCES: Yes. BOD5, phenols and suspended solids (RSP).

REMEDIAL ACTIONS: Pending success of site closure to reduce leachate generation from landfilling of woodwaste.

COMMENTS: Study of receiving water in 1986 showed no significant impact of leachate on Lake Timiskaming. The company has submitted application for a Certifcate of Approval (Air) covering the installation of a new wood waste boiler.

08/01/89

008501-00-0(7) REXWOOD PRODUCTS LIMITED NEW LISKEARD REPORT DATE: 25 SEP 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	17.1	13.6	70.7	1160.9	27.8	27.7	23.4	31.4	87.7	385.9	389.1	73.6	192	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	0.8		0.001	3.4	0.375	5.23	0.048	3.23	3.4	11.4	1.59	0.25	2.7	
KG /DAY (BOD5)	GUIDELINE	0.257		1.06	17.4	0.417	0.416	0.351	0.471	1.32	5.79	5.84	1.1	3.13	5
PHENOLS UNF-REAC	ACTUAL	0.000005	0.000014	0.00007	0.0012	0.007	0.006	0.00196	0.031	0.0009	0.004	0.39	0.003	0.037	
KG /DAY (PHNOL)	GUIDELINE	0	0	0.001	0.023	0.001	0.001	0	0.001	0.002	0.008	0.008	0.001	0.004	6
RESIDUE PARTIC.	ACTUAL	1.4	0.136	0.48	1.5	0.003	1.38	0.0377	0.37	1.85	23.9	0.389	1.21	2.72	
KG /DAY (RSP)	GUIDELINE	0.257	0.204	1.06	17.4	0.417	0.416	0.351	0.471	1.32	5.79	5.84	1.1	2.89	5

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 16 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 54% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Rio Algom Ltd. (Panel Mill)
& PLANT LOCATION: Elliot Lake

IMIS NO.: 0001670207

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY:
DIRECT: Quirke Lake to Serpent River
INDIRECT: 65 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined, milled and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains metal salts, ammonia compounds, and radioactive materials

EFFLUENT TREATMENT: Addition of barium chloride and lime to precipitate radium, and adjust pH and precipitate metals followed by removal in settling pond.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000167-02-0(7) RIO ALGOM LIMITED (PANEL MILL) ELLIOT LAKE REPORT DATE: 04 JULY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10523.5	10108.8	10359.3	14696.6	13409.3	12674.8	9529.91	8968.31	8328.96	9979.2	14731.2	16485.1	11650	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.2	0.06	0.09	0.18	0.17	0.15	0.07	0.09	0.07	0.1	0.09	0.21	0.123	
KG /DAY (CUUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
IRON UNF.TOT.	ACTUAL	15	0.91	0.52	2.5	1.34	0.89	0.48	1.7	0.33	0.9	1.03	3.13	2.39	
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
NICKEL UNF.TOT.	ACTUAL	0.48	0.43	0.66	0.85	0.55	0.25	0.28	0.23	0.48	0.79	0.56	0.87	0.536	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
LEAD UNF.TOT.	ACTUAL	0.4	0.31	0.32	0.47	0.38	0.41	0.24	0.22	0.38	0.46	0.59	0.63	0.414	
KG /DAY (PBUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
PH	ACTUAL	9.01	9.02	7.94	6.84	7.65	7.97	8.02	8.35	8.46	7.58	8.6	7.88	8.11	
(PH)	GUIDELINE														0
RADIUM 226 FIL.	ACTUAL	174	210	209	100	110		132	193	85	62	124	66	133	
MBQ/L AS RA	GUIDELINE	740	740	740	740	740		740	740	740	740	740	740	740	0
RADIUM 226	ACTUAL	532	611	628	718	359	253	221	360	164	143	201	185	365	
MBQ/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	21	20	20.8	29.4	19	29	7	11	8	8	14.7	16.5	17	
KG /DAY (RSP)	GUIDELINE	157	152	154	222	201	190	143	135	125	150	221	247	175	0
ZINC UNF.TOT.	ACTUAL	0.6	0.45	0.36	1.16	0.4	0.16	0.07	0.64	0.12	0.44	0.19	0.56	0.323	
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Rio Algom Ltd. (Quirke Mill)
& PLANT LOCATION: Elliot Lake
IMIS NO.: 0001670108

MOE REGION: Northeast
DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River
INDIRECT: 67 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined, milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts, ammonia compounds, and radioactive materials.

EFFLUENT TREATMENT: Mill tailings are treated with lime to effect pH control and precipitate metals. Tailings effluent is treated with barium chloride to precipitate Radium 226 and lime addition to adjust pH before final discharge to river.

DISCHARGE TYPE:

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: Yes. Iron and suspended solids (RSP).

REMEDIAL ACTIONS:

COMMENTS: Abatement of total suspended solids and iron to be undertaken in consultation with AECB.

In 1988, three trout bioassays indicated that the Station D2 effluent, and the Station Q3 effluent, were toxic to fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 94.4% and 72.7% respectively.In 1988, one trout bioassay indicated the Station D5 effluent to have been non-acutely lethal to the test fish.

08/02/89

000167-01-0(8) RIO ALGOM LIMITED (QUIRKE MILL) ELLIOT LAKE REPORT DATE: 04 JULY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	18532.8	16251.8	14904	19180.8	16778.8	9875.51	9201.6	17573.8	17521.9	18169.9	20796.4	17884.8	16389	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.48	0.5	0.31	0.77	0.35	0.24		0.32	0.11	0.4	0.46	0.36	0.39	
KG /DAY (CUUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C		S/C	S/C	S/C	S/C	S/C		
IRON UNF.TOT.	ACTUAL	64.1	95.6	73.6	170.6	48.4	66.9	10.7	24.4	23.4	45.19	719.1	598.2	161.7	
KG /DAY (FEUT)	GUIDELINE	18.5	16.2	14.9	19.2	16.8	9.88	9.2	17.6	17.5	18.2	20.8	17.9	16.4	12
NICKEL UNF.TOT.	ACTUAL	0.92	0.73	0.79	1.1	0.45	0.62		0.47	0.96	0.84	0.85	1.25	0.82	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C		S/C	S/C	S/C	S/C	S/C		
LEAD UNF.TOT.	ACTUAL	0.59	0.54	0.49	0.52	0.79	0.37		0.93	0.28	0.69	1.62	0.89	0.7	
KG /DAY (PBUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C		S/C	S/C	S/C	S/C	S/C		
PH	ACTUAL	7.36	7.26	7.61	7.56	7.85	8.08	7.33	8.82	8.07	7.92	8.56	7.5	7.83	
(PH)	GUIDELINE														0
RADIUM 226 FIL.	ACTUAL	155	166	208	243	169	95	195	195	48	85	78		149	
MBQ/L AS RA	GUIDELINE	740	740	740	740	740	740	740	740	740	740	740		740	0
RADIUM 226	ACTUAL	339	228	333	404	217	196	243	326	88	122	183	262	245	
MBQ/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	222	195	134	229	3611	112	73	117	96	137	3057	2647	886	
KG /DAY (RSP)	GUIDELINE	277	273	223	286	250	147	138	264	264	271	312	267	248	3
ZINC UNF.TOT.	ACTUAL	0.2	0.33	0.28	0.71	0.27	0.32		0.14	0.96	0.2	0.25	0.36	0.357	
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C		S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 15 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 69% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Rio Algom Ltd. (Stanleigh Mill) IMIS NO.: 0001670306
& PLANT LOCATION: Elliot Lake

MOE REGION: Northeast DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River (McCabe Lake)
INDIRECT: Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore mined, milled and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Effluent system consists of settling basin, sequential addition of barium chloride and lime, filtration plant to remove solids.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000167-03-0(6) RIO ALGOM LIMITED (STANLEIGH MILL) ELLIOT LAKE REPORT DATE: 04 JULY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL			21513.6	39994.5	37480	37878	32547	30292	27380	26542	31873	36452	32323	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL					0.41	0.49	0.26	0.45	0.22	0.16	0.25	0.36	0.325	
KG /DAY (CUUT)	GUIDELINE					S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
NICKEL UNF.TOT.	ACTUAL					1.01	0.64	0.55	2.64	0.52	0.42	0.96		0.963	
KG /DAY (NIUT)	GUIDELINE					S/C	S/C	S/C	S/C	S/C	S/C	S/C			
LEAD UNF.TOT.	ACTUAL					1.05	0.72	0.07	2.21	1.56	0.64	1.12	1.31	1.09	
KG /DAY (PBUT)	GUIDELINE					S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
PH	ACTUAL			6.95	7.99	7.12	8.01	7.56	7.56	7.83	7.63	6.89	7.02	7.46	0
(PH)	GUIDELINE														
RADIUM 226 FIL.	ACTUAL				53	49	55	48	116	46	39	43	37	54	
MBQ/L AS RA	GUIDELINE				740	740	740	740	740	740	740	740	740	740	0
RADIUM 226	ACTUAL				98	139	138	118	329	265	238	343	291	218	
MBQ/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL					125	70	50	109	111	97	255	255.2	134	
KG /DAY (RSP)	GUIDELINE					5622	568	488	454	411	398	478	547	1121	0
ZINC UNF.TOT.	ACTUAL					1.5	1.21	0.85	5.15	0.57	0.56	1.63	1.35	1.6	
KG /DAY (ZNUT)	GUIDELINE					S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Rohm and Haas Canada Ltd Morrisburg	IMIS NO.: 0000580100
MOE REGION:	Southeast	DISTRICT: Cornwall
INDUSTRIAL SECTOR:	Organic Chemicals	SIC CODE: 3712, 3731
RECEIVING WATERBODY:	DIRECT: St. Lawrence River INDIRECT:	

DESCRIPTION OF ACTIVITY: Polymethylmethacrylate is manufactured using a cell casting polymerization process and an extrusion process. Oil additives are produced through polymerization of esters.

EFFLUENT CHARACTERISTICS: A single effluent is a combination of 2 process effluents, cooling water, storm water and effluent from a package sewage treatment plant. Chloroform detected.

EFFLUENT TREATMENT: No effluent treatment. Process streams from the oil additives plant pass through an oily water separator.

DISCHARGE TYPE: Discharges the effluent to the St. Lawrence via a ditch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Company is part of MISA Organic Chemical Sector which will lead to enforceable requirements. Company asked to report starting November, 1988.

07/15/89

000058-01-0(0) ROHM AND HAAS CANADA LTD. MORRISBURG REPORT DATE: 08 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL											608.6	619.8	614	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL											104.7	79.3	92	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL											0.02	0.05	0.035	
KG /DAY (PPUT)	GUIDELINE											0.609	0.62	0.614	0
RESIDUE FILTERED	ACTUAL											115.6	109.7	113	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL											5.9	6.8	6.35	
KG /DAY (RSP)	GUIDELINE											15.2	15.5	15.4	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 4, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: Rothsay, The Rendering Division of Maple Leaf Mills Ltd. Rothsay

IMIS NO.: 0026480202

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE:

RECEIVING WATERBODY:
DIRECT: Moorefield Creek to Conestogo River to Grand River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: rendering

EFFLUENT CHARACTERISTICS: Contains phosphorus, hydrogen sulphide and dissolved organics.

EFFLUENT TREATMENT: Grease skimming, screening, flow equalization, flocculation, dissolved air flotation, aeration, sedimentation, and treated effluent polishing in holding lagoons by aeration and lime treatment for ammonia and phosphorus reduction.

DISCHARGE TYPE: seasonal; discharge permitted only in November - February period.

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** Effluent limits are those of current C. of A. #4-079-84-887 issued Nov. 88. Limits vary with creek's flow and ammonia-nitrogen concentrations, and with the month. C. of A. allows spray irrigation on company's land of up to 91,000 cubic metres (20 million gallons) of treated effluent a year and requires existing irrigation system be maintained as a backup for drought flow years.

EXCEEDANCES: Generally in compliance; exceedances were not significant.

REMEDIAL ACTIONS: Current C. of A. is for WWTP modifications which are now completed as follows: skimmer bypass prevention, air scrubber water diversion from WWTP to lagoon #1, increased aeration capacity, change in aeration tanks to plug flow, addition of aeration to equalization tank. Effluent quality is expected to improve with these modifications for the discharge season starting in December, 1989.

COMMENTS: Township's consultant confirmed independently that discharge of winter 1988/89 was not harmful to Moorefield Creek. Samples dated Nov. 10 thru Dec. 13 were collected at pumphouse overflow tank and gave residue particulate (RSP) values higher than those in lagoon #3, and are suspected to be higher in all parameters than actual discharge to Moorefield Creek. Excluding these suspect samples, the discharge exceeded its limits 6 times out of 56 for a compliance record of 89%.

10/01/89

002648-02-0(2)   ROTHSAY, THE RENDERING DIV OF MAPLE LEAF MILLS LTD   REPORT DATE: 01 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING PARAMETERS		JAN07	JAN14	JAN21	JAN27	FEB26	NOV10	NOV15	NOV22	NOV29	DEC06	DEC13	DEC20	DEC28	ANNUAL AVERAGE	TOTAL EXCEEDANCE
FLOW	ACTUAL	5702.00	5702.00	5702.00	5702.00	5789.00	4860.00	4374.00	2754.00	1166.00	1490.00	752.00	2624.00	5171.00	3984.00	
M3 /DAY (FTFLOW)	GUIDELINE	12960.00	17280.00	51840.00	30240.00	41558.00	4860.00	4374.00	2754.00	1147.00	1490.00	752.00	2624.00	5171.00	13619.00	0
TOD	ACTUAL	321.00	358.00	382.00	340.00	363.00	1008.00	964.00	352.00	172.00	199.00	102.00	388.00	623.00	429.00	
KG /DAY (TOD)	REQUIREMENT	2200.00	2500.00	9000.00	2800.00	11000.00	5530.00	5098.00	3686.00	1136.00	938.00	791.00	3040.00	3971.00	3976.00	0
NH3-N TOTAL	ACTUAL	32.50	29.00	31.00	34.00	43.00	67.00	64.00	41.00	17.00	21.00	10.00	36.00	70.00	38.10	
KG /DAY (NNHTFR)	REQUIREMENT	75.00	90.00	300.00	150.00	310.00	63.00	63.00	44.00	17.00	11.00	10.00	30.00	44.00	93.00	4
PH	ACTUAL	7.20	7.10	6.90	7.10	7.90	7.40	7.90	8.10	8.00	8.10	8.20	8.10	8.00	7.70	
(PH)	REQUIREMENT															0
PHOSPHOR UNF TOTAL	ACTUAL	0.46	0.29	0.63	0.91	0.69	0.44	0.34	0.58	0.14	0.18	0.04	0.24	0.36	0.41	
KG /DAY (PPUT)	REQUIREMENT	13.00	17.30	51.80	30.20	41.60	4.86	4.37	2.75	1.15	1.49	0.75	2.62	5.17	13.60	0
RESIDUE PARTIC.	ACTUAL	51.30	28.50	51.30	25.10	23.20	189.50	126.80	78.50	27.50	64.90	12.50	34.10	66.20	60.00	
KG /DAY (RSP)	REQUIREMENT	194.00	259.00	778.00	454.00	623.00	73.00	66.00	41.30	17.20	22.40	11.30	39.40	77.60	204.00	6
HYD. SULFIDE	ACTUAL	0.46	0.06	0.46	0.46	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
KG /DAY (SSIDA)	REQUIREMENT	0.15	0.17	0.57	0.28	0.56										2

NOTE: S/C - SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 7.00 - 8.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL WEEKLY LIMITS 12 TIMES OUT OF 83, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1988

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Shell Canada Ltd
& PLANT LOCATION: Corunna

IMIS NO.: 0000510107

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651, 373

RECEIVING WATERBODY: DIRECT: Talfourd Creek
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products

EFFLUENT CHARACTERISTICS: Contains insoluble and dissolved compounds from crude oil at parts per billion level.

EFFLUENT TREATMENT: Physical, chemical and biotreatment.

DISCHARGE TYPE: continuous through two outfalls, batch through one outfall for storm pond

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-0048-87-006 for stormwater retention pond for pH, ammonia, solvent extractables, phenols and volatile suspended solids. C. of A. #4-0093-88-006 for biotreatment effluent for phenols and volitile suspended solids.

MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: Third biotreater clarifier being commissioned. Potentially oily water separator modifications planned for 1989.

COMMENTS:

One trout bioassay in 1988 indicated the total effluent to have been non-acutely lethal to the test fish.

07/29/89

000051-01-0(7) SHELL CANADA PRODUCTS LIMITED, SARNIA MANUFACTURIN CORUNNA REPORT DATE: 23 OCT 89

SUMMARY FOR EMIS. TYPE: 04 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0200 0300

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	210816	214994	190513	150581	176193	235219	283458	323082	344335	247540	155372		230190	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.8	7.3	7.8	8.1	8.4	8.1	8	7.7	8.1	8		7.88	0
(PH)	GUIDELINE														
NH3-N TOTAL	ACTUAL	0*	44	54	50.3	0*	3	0*	9	12	9	1		16.57272	
KG /DAY (NNHTFR)	GUIDELINE	2108	2150	1905	1506	1762	2352	2835	3231	3443	2475	1554		2302	0
PHENOLS UNF-REAC	ACTUAL	0.29	0.08	0*	0.11	0.18	0*	0*	0.36	0.07	0*	0*		0.099	
KG /DAY (PHNOL)	GUIDELINE	4.22	4.3	3.81	3.01	3.52	4.7	5.67	6.46	6.89	4.95	3.11		4.6	0
RESIDUE FILTERED	ACTUAL	2727	0*	483	939	0*	0*	3757	0*	0*	786	0*		790	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0*	760	0*	967	84	0*	0*	0*	0*	497	0*		210	
KG /DAY (RSP)	GUIDELINE	3162	3225	2858	2259	2643	3528	4252	4846	5165	3713	2331		3453	0
SOLVENT EXTRACT.	ACTUAL	0*	0*	0*	76.8	0*	12.8	0*	0*	0*	0*	0*		8.15	
KG /DAY (SOLEXT)	GUIDELINE	3162	3225	2858	2259	2643	3528	4252	4846	5165	3713	2331		3453	0
SULPHIDE UNF.REAC	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0	0	0	0		0	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	717	549	948	0*	53	0*	0*	475	0	0	0		249	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 55, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Sherman Mine
& PLANT LOCATION: Temagami

IMIS NO.: 0001540004

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 058

RECEIVING WATERBODY: DIRECT: Lake Temagami
INDIRECT: Sturgeon R. to Lake Nipissing

DESCRIPTION OF ACTIVITY: Open pit mining. Concentrating iron ore to pellets.

EFFLUENT CHARACTERISTICS: Contains suspended solids (iron) and dissolved inorganic salts.

EFFLUENT TREATMENT: Tailings impoundment.

DISCHARGE TYPE: Continuous from April to December. None from January to March due to freeze up.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Limits based on Guidelines for Environmental Control in the Ontario Mineral Industry. No effluent discharges during winter months due to freeze-up.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Company intends to permantly cease operations in March 1990. An inter-ministerial committee is negotiating a decommissioning plan with the company.

08/02/89

000154-00-0(4) SHERMAN MINE TEMAGAMI REPORT DATE: 25 SEP 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	0	0	0	0	0	0	0	0	196.4	196.4	0	0	32.7	
M3 /DAY (FTFLOW)	GUIDELINE														
ALUMINUM UNF.TOT.	ACTUAL									0.002	0.002			0.002	
KG /DAY (ALUT)	GUIDELINE									0.196	0.196			0.196	0
ARSENIC UNF.TOT.	ACTUAL									0.002	0.002			0.002	
KG /DAY (ASUT)	GUIDELINE									0.098	0.098			0.098	0
COPPER UNF.TOT.	ACTUAL									0.002	0.002			0.002	
KG /DAY (CUUT)	GUIDELINE									0.196	0.196			0.196	0
IRON UNF.TOT.	ACTUAL									0.006	0.006			0.006	
KG /DAY (FEUT)	GUIDELINE									0.196	0.196			0.196	0
NICKEL UNF.TOT.	ACTUAL									0.01	0.01			0.01	
KG /DAY (NIUT)	GUIDELINE									0.196	0.196			0.196	0
LEAD UNF.TOT.	ACTUAL									0.01	0.01			0.01	
KG /DAY (PBUT)	GUIDELINE									0.196	0.196			0.196	0
PH	ACTUAL									7.1	7.1			7.1	
(PH)	GUIDELINE														0
RESIDUE FILTERED	ACTUAL									168.9	168.9			169	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL									0.88	0.88			0.88	
KG /DAY (RSP)	GUIDELINE									2.95	2.95			2.95	0
SULPHATE UNF.REAC	ACTUAL									90.7	90.7			90.7	
KG /DAY (SSO4UR)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL									0.004	0.004			0.004	
KG /DAY (ZNUT)	GUIDELINE									S/C	S/C				

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 15, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Sherwood Poultry Farms
& PLANT LOCATION: Dundas/Flamborough Twp.

IMIS NO.: 0093240000

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1010

RECEIVING WATERBODY: DIRECT: Spencer Creek to Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Chicken processing plant.

EFFLUENT CHARACTERISTICS: Animal fats, manure, blood (ammonia, suspended solids, phosphorus, BOD, solvent extractables)

EFFLUENT TREATMENT: Current: extended aeration, chemical trreatment, filters. Future: will add another component to treatment.

DISCHARGE TYPE: Seasonal discharge - discharge for months of February, March and April only in 1988.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE guidelines.

EXCEEDANCES: 3 monthly exceedances for ammonia (NNHTFR) and phosphorus (PPUT). 2 monthly exceedances for suspended solids (RSP).

REMEDIAL ACTIONS: Company recently purchased by Maple Leaf Mills Ltd. and new consulting firm retained. Seasonal discharge of effluent to recommence in November, 1989. Company treating lagoon with alum to improve quality. In addition, company to submit an application in November, 1989 for installation of a dissolved air Elotation unit and rotary prescreening unit prior to next discharge season in 1990.

COMMENTS:

07/22/89

009324-00-0(0) SHERWOOD POULTRY FARMS DUNDAS/FLAMBOROUGH REPORT DATE: 20 OCT 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		454	454	454									454	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL		6.4	5	4.6									0.92	
KG /DAY (BOD5)	GUIDELINE		6.81	6.81	6.81									6.81	0
NH3-N TOTAL	ACTUAL		30	22	20									4	
KG /DAY (NNHTFR)	GUIDELINE		4.54	4.54	4.54									4.54	3
PHOSPHOR UNF.TOT.	ACTUAL		3.2	1.4	2.3									0.46	
KG /DAY (PPUT)	GUIDELINE		0.454	0.454	0.454									0.454	3
RESIDUE PARTIC.	ACTUAL		15.5	15.5	6.8									1.36	
KG /DAY (RSP)	GUIDELINE		6.81	6.81	6.81									6.81	2
SOLVENT EXTRACT.	ACTUAL		0	0	10.8									3.6	
KG /DAY (SOLEXT)	GUIDELINE		6.81	6.81	6.81									6.81	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 25, FOR A TOTAL COMPLIANCE RECORD OF 68% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Spruce Falls Power and Paper Co., Ltd.
& PLANT LOCATION: Kapuskasing
IMIS NO.: 0001340009

MOE REGION: North East
DISTRICT: Timmins

INDUSTRIAL SECTOR: Pulp and Paper
SIC CODE: 031

RECEIVING WATERBODY: DIRECT: Kapuskasing R.
INDIRECT:

DESCRIPTION OF ACTIVITY: Converts softwood (black spruce balsam fir, jack pine) logs and chips into newsprint by 3 different processes - stone groundwood, TMP and Magnefite (Magnefite has spent sulphite liquor recovery). Hydrosulphite is used to brighten the newspaper.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper) and many dissolved organics.

EFFLUENT TREATMENT: Two clarifiers - one for the woodroom and one for total milll effluent (enclosed) are used to remove solids.

DISCHARGE TYPE: Continous outfall.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): The present Control Order requirements for suspended solids are 10 Bd tonnes averaged over 30 consecutive days and 20Bd tonnes on any given day. The limits for BOD5 vary with flows and temperature (i.e. assimilative capacity) of the Kapuskasing River; the limits range from a low of 26 tonnes averaged over any 30 consecutive days (during summer months) to a high of 34 tonnes averaged over any 30 consecutive days (during the winter months). However, on any given day day the BOD5 discharge limit is 40 tonnes.

EXCEEDANCES: None. Company is in compliance

REMEDIAL ACTIONS: The company initiated various procedures, such as using debarked wood, reducing the use of magnefite pulp, weak red liquor neutralization and the recycling of water to control their BOD5 discharge.

COMMENTS:

Two trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 24.9% and 35.3%.

08/02/89

000134-00-0(9) SPRUCE FALLS POWER AND PAPER CO LTD KAPUSKASING REPORT DATE: 07 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	23000	26000	26000	22000	23000	20000	23000	22000	23000	25000		27000	23636	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
RESIDUE PARTIC.	ACTUAL	6300	6700	8100	5900	5200	5900	6900	6500	5700	6300	4700	6100	6192	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Stanchem Ltd.
& PLANT LOCATION: Cornwall

IMIS NO.: 0000391508

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3711

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Packages small quantities of industrial chemicals.

EFFLUENT CHARACTERISTICS: Effluent generated by the cleaning of containers and filling equipment.

EFFLUENT TREATMENT: Neutralization.

DISCHARGE TYPE: Continous through a submerged diffuser sharde with Domtar.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Yes. All but one target for the discharge of BOD5 and RSP (suspended solids) were exceeded.

REMEDIAL ACTIONS:

COMMENTS: Company is part of MISA Inorganic Chemical Sector. Legally enforceable requirements will be set.

07/15/89

000039-15-0(8)   STANCHEM LTD. A DIVISION OF CIL INC.   CORNWALL   REPORT DATE: 08 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	30.1	28.2	30.4	30.3	32.2	36.9	36.8	35.5	27.3	36.31	34	21.75	31.6	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.5	6.8	6.6	6.6	6.9	6.9	6.7	7	7	7.1	6.9	6.4	6.78	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	0.82	0.5	3.57	2.4	1.56	2.5	2.98	1.53	1.28	3.5	1.91	1.3	1.99	
KG /DAY (BOD5)	GUIDELINE	0.753	0.705	0.76	0.758	0.805	0.923	0.92	0.888	0.683	0.908	0.85	0.544	0.791	11
CHEM. OX DEMAND	ACTUAL	15.2	2.21	9.58	2.79	19	3.46	3.99	9.3	4.97	9.59	3.78	4.61	7.37	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL		0.0008	0.007	0.009	0.003	0.003	0.011	0.011	0.005	0.009	0.012	0.007	0.007	
KG /DAY (PPUT)	GUIDELINE		0.028	0.03	0.03	0.032	0.037	0.037	0.036	0.027	0.036	0.034	0.022	0.032	0
RESIDUE PARTIC.	ACTUAL	11.83	5.95	5.33	5.49	11.8	9.35	12.69	12.13	9.39	10.69	13.36	10.42	9.87	
KG /DAY (RSP)	GUIDELINE	0.753	0.705	0.76	0.758	0.805	0.923	0.92	0.888	0.683	0.908	0.85	0.544	0.791	12

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 23 OUT OF 47, FOR A TOTAL COMPLIANCE RECORD OF 51% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME:
& PLANT LOCATION: Stanley Hardware Div. of Stanley Canada Inc.,
New Hamburg

IMIS NO.: 0001480003

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 301

RECEIVING WATERBODY:
DIRECT: Nith River to Grand River
INDIRECT: 203 km to Lake Erie

DESCRIPTION OF ACTIVITY: Makes tools, plates hardware, etc.

EFFLUENT CHARACTERISTICS: Contains heavy metals and cyanide.

EFFLUENT TREATMENT: Chrome reduction, cyanide destruction, neutralization and sedimentation.

DISCHARGE TYPE: five day continuous flow 7 am to 12:00 pm to a storm sewer

COMPANY LIMITS SET BY: **CONTROL ORDER (EFFECTIVE DATE):** Control Order in August 1988, amended April 1989, requires company to meet C. of A limits by June 1989..

CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval issued July 1989, for new treatment plant.

EXCEEDANCES: Yes. Flow, cyanide, chromium, copper, nickel, zinc, suspended solids.

REMEDIAL ACTIONS: New wastewater treatment plant under construction (completed August 1989).

COMMENTS: Preliminary test of new treatment plant shows excellent effluent quality.

10/01/89

000148-00-0(3) STANLEY HARDWARE NEW HAMBURG REPORT DATE: 01 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	300	300	300	300	300	350	380	436	351	327	361	332	336	
M3 /DAY (FTFLOW)	REQUIREMENT	304	304	304	304	304	304	304	304	304	304	304	304	304	7
CYANIDE AVAIL	ACTUAL	0.02	0.1	0.02	0.012	0.009	0.014	0.027	0.005	0.0167	0.018	0.004	0.02	0.022	
KG /DAY (CCNAUR)	REQUIREMENT	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	1
CHROMIUM UNF.TOT.	ACTUAL	0.02	0.35	0.05	0.087	0.12	0.011	0.027	1.7	2.12	0.73	0.021	0.004	0.437	
KG /DAY (CRUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4
COPPER UNF.TOT.	ACTUAL	0.35	0.41	0.3	0.24	0.26	0.273	0.878	0.344	0.26	0.098	0.256	0.113	0.315	
KG /DAY (CUUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4
PH	ACTUAL	9.5	9.2	8.3	8.9	9.12	9.2	9.1	9.1	8.8	9.3	9	9	9.04	0
(PH)	REQUIREMENT														
NICKEL UNF.TOT.	ACTUAL	0.31	0.33	0.4	0.28	0.26	0.487	0.243	0.929	0.98	0.468	0.112	0.11	0.409	
KG /DAY (NIUT)	REQUIREMENT	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	10
RESIDUE PARTIC.	ACTUAL	20.1	10.8	13.2	7.95	11.4	7.358	9.88	13.08	14.4	11.44	9.34	4.15	11.1	
KG /DAY (RSP)	REQUIREMENT	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	11
ZINC UNF.TOT.	ACTUAL	0.48	0.69	0.62	0.25	0.28	0.294	0.338	0.57	0.7	0.124	0.288	0.209	0.404	
KG /DAY (ZNUT)	REQUIREMENT	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	11

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 43 OUT OF 90, FOR A TOTAL COMPLIANCE RECORD OF 52% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: St. Marys Paper Inc.
& PLANT LOCATION: Sault Ste. Marie

IMIS NO.: 0000860304

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: St. Mary's River
INDIRECT:

DESCRIPTION OF ACTIVITY: Purchased Kraft pulp is added to the pulp made by the stone groundwood process to make paper specialties. Clay line was added Dec/84. Now a slush pulp multi-product mill (with no white-water return).

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, clay, wood) and soluble organic compounds like sugars.

EFFLUENT TREATMENT: Bull screen preceedes clarifier with scum collector on overflow. Underflow solids are dewatered and burned. An internal recovery system removes excess clays.

DISCHARGE TYPE: Continuous through a submerged diffuser

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): May 17, 1989. The discharge of total suspended solids (RSP) averaged over any 30 consecutive working days will not exceed the allowable load levels based on the 1971 Federal Regulations calculated from the Production/Furnish Mix formula. At no time is the maximum daily limit of suspended solids to exceed twice the average allowable load level referred to in the previous sentence.

EXCEEDANCES: Yes. The allowable load of total suspended solids was exceeded in the month of August due to start up of new #5 paper machine. The daily permissable discharge was exceeded five times. Investigations and Enforcement Branch is investigating.

REMEDIAL ACTIONS: The exceedance of the suspended solids requirement was due to start up problems with a new paper machine. No remedial action is required.

COMMENTS:
Eight trout bioassays in 1988 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 11.2% to 27.4%.

08/01/89

000086-03-0(4)   ST. MARYS PAPER INC.   SAULT STE MARIE   REPORT DATE: 04 JULY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	28913	28076	27497	26774	25976	27019	27632	28328	28505	29082	30786	31018	28301	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1390	1160	1610	660	910	650	1700	3070	3100	3170	3380	3380	2015	
KG /DAY (BOD5)															
RESIDUE PARTIC.	ACTUAL	5840	3650	3610	5490	5370	5260	4480	6320	5090	4390	5520	5400	5035	
KG /DAY (RSP)	REQUIREMENT	6070	6463	6758	6903	6548	6868	5674	5367	6531	6310	5800	5405	6225	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 91.7% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Steetley Talc Limited (Luzenac Inc. as of Dec 1/88) Foleyet	IMIS NO.: 0096920004
MOE REGION:	Northeast	DISTRICT: Timmins
INDUSTRIAL SECTOR:	Mining, Milling, Smelting	SIC CODE:
RECEIVING WATERBODY:	DIRECT: Crawford Creek INDIRECT: Nat River	

DESCRIPTION OF ACTIVITY: Mining and milling of talc.

EFFLUENT CHARACTERISTICS: Contains suspended solids.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): February 9, 1989

EXCEEDANCES: Yes. Suspended solids twice.

REMEDIAL ACTIONS:

COMMENTS: Samples taken quarterly, sampling started in latter part of 1987. Exceedance of suspended solids limit was attributed to poor sampling technique.

One trout bioassay in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

08/02/89

009692-00-0(4) STEETLEY TALC LIMITED TIMMINS REPORT DATE: 07 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL				33.8		33.79			1.94			0	17.4	
MG/L (RSP)	GUIDELINE				15		15			15			15	15	2

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 4, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Stelco Inc., Hilton Works
& PLANT LOCATION: Hamilton

IMIS NO.: 0000950006

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: All phases of iron and steel production including coke making, ironmaking, steelmaking and rolling.

EFFLUENT CHARACTERISTICS: Contains heavy metals and light organics.

EFFLUENT TREATMENT: Recycle, clarification, filtration, oil recovery and ion exchange.

DISCHARGE TYPE: continuous through five shore outfalls

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE guidelines.

EXCEEDANCES: None. Company has met its guideline objectives.

REMEDIAL ACTIONS:

COMMENTS: Since the diversion of #1 and #2 Interceptor sumps, April 1987, ammonia, cyanide and phenol loadings are in compliance. Suspended solids and solvent extractables (oils) were reduced in 1988 by rerouting of the Oil Recovery Plant effluent to the Eastside Filtration plant. Since phosphorus is consistently 98% below target loads, it is not being reported.

In 1988, an extensive study was conducted to assess effluent locations for possible acute toxicity. The following summaries identify each effluent tested.Four trout bioassays indicated the West Side Open Cut effluent to have been non-acutely lethal to the test fish.Three trout bioassays indicated the #2 Rod Mill Primary Lagoon effluent to have been non-acutely lethal to the test fish.Three trout bioassays indicated the 20" Mill effluent to have been non-acutely lethal to the test fish.Four trout bioassays indicated the East Side Filtration Plant effluent to have been non-acutely lethal to the test fish.Four trout bioassays indicated the North Outfall effluent to have been non-acutely lethal to the test fish.Four trout bioassays indicated the Northwest Outfall effluent to have been non-acutely lethal to the test fish.

07/22/89

REPORT DATE: 01 AUG 89

000095-00-0(6)   STELCO INC   HAMILTON
SUMMARY FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO
INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0601 0602 1100 1200
DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1095000	990400	980295	1022000	1046000					76306			868537	
M3 /DAY (FTFLOW)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	11.34	0*	0*	0*	0*		0	0*	0	0	0	8.65	0*	
KG /DAY (CCNAUR)	GUIDELINE	212	212	212	212	212		212	212	212	212	212	212	212	0
CHEM. OX DEMAND	ACTUAL	3356.1	1872	3749	511	0*		931	1812.24	101	0*	2474	2011	1071	
KG /DAY (COD)	GUIDELINE	26400	26400	26400	26400	26400		26400	26400	26400	26400	26400	26400	26400	0
IRON UNF.TOT.	ACTUAL	1642	1997	1219.69	1203.4	739.329	393	95.66	229.669	374.6	23.6	713.6	701.5	839	
KG /DAY (FEUT)	GUIDELINE	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	0
NH3-N TOTAL	ACTUAL	1033.6	839.6	928.8	849.5	1280.2	243.5	0*	0*	0	369.7	138.7	414.2	490.8	
KG /DAY (NNHTUR)	GUIDELINE	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	0
PH	ACTUAL	7.36	7.848	7.056	7.894	7.744		8.55	7.9	8.09	7.662	7.03	7.544	7.7	0
(PH)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	3.64	1.56	0*	0.72	0*	0.9	0.23	0.97	2.71	4.34	7.79	10.61	2.75	
KG /DAY (PHNOL)	GUIDELINE	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	0
RESIDUE PARTIC.	ACTUAL	4169.3	8301.38	6319	4212.69	915.3	730.21	780.6	1213.5	1789.95	0*	2491.8	1675.6	2873	
KG /DAY (RSP)	GUIDELINE	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900	0
SOLVENT EXTRACT.	ACTUAL	1831.97	439.219	0*	976.44	0*		0*	0*	0*	4.59987	959.189	259.1	19.8	
KG /DAY (SOLEXT)	GUIDELINE	15900	15900	15900	15900	15900		15900	15900	15900	15900	15900	15900	15900	0
ZINC UNF.TOT.	ACTUAL	50.16	18.74	22.49	19.97	20.93	7.18	0*	7.83	11.08	9.6	14.3	41.86		
KG /DAY (ZNUT)	GUIDELINE	1055	1055	1055	1055	1055	1055	1055	1055	1055	1055	1055	1055	1055	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50 **

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 100, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Stelco Inc. Lake Erie Works
& PLANT LOCATION: Nanticoke
IMIS NO.: 0000950105

MOE REGION: West Central
DISTRICT: Haldimand-Norfold/Brant

INDUSTRIAL SECTOR: Iron and Steel
SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Centre Creek
INDIRECT: 0.15 km to Lake Erie

DESCRIPTION OF ACTIVITY: Coke ovens with a by-product plant, blast furnace, basic oxygen furnace and a hot strip mill are used to make steel.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Final wastewater treatment consisting of equalization, clarification, alkaline breakpoint chlorination, filtration and final holding pond.

DISCHARGE TYPE: continuous through an open outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Requirement for process effluent set by Certificate of Approval. Revised December/87.

MOE OR FEDERAL GUIDELINES: MOE guidelines for Sanitary Sewage Lagoon Discharges.

EXCEEDANCES: Final process effluent discharge had one month exceedance for lead. Sanitary sewage lagoon discharge had a one month exceedance for residue particulate .

REMEDIAL ACTIONS: The existing WWTP is capable of being operated without exceedances. Quicker reporting of monitoring results by the company laboratory has been implemented allowing WWTP operator to respond more quickly to elevated levels. No exceedances have occurred since May, 1988

COMMENTS: Treatment and recirculation within plant is maximized. Best Practical Technology used to treat process wastewaters.

07/22/89

000095-01-0(5) STELCO INC. LAKE ERIE WORKS NANTICOKE REPORT DATE: 01 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	34560	27850	30921	29090	35093	35888	25810	15459	18392	30135	33410	29611	28852	
M3 /DAY (FTFLOW)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	1.9	1.2	2	1.5	1.9	1.3	0.9	0.4	0.9	3.2	2	2	1.6	
KG /DAY (CCNAUR)	GUIDELINE														
CYANIDE FREE	ACTUAL	1.9	1.4	2.1	1.6	1.9	1.8	1.3	0.7	0.9	1.7	1.7	1.5	1.54	
KG /DAY (CCNFUR)	REQUIREMENT	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	0
CADMIUM UNF.TOT.	ACTUAL	0.17	0.14	0.15	0.15	0.18	0.18	0.005	0.007	0.005	0.06	0.005	0.18	0.103	
KG /DAY (CDUT)	GUIDELINE														
CHLORINE FREE	ACTUAL	3.5	2.8	3.1	2.9	3.51	3.59	2.5	1.55	1.84	3.01	3.34	2.96	2.88	
KG /DAY (CLFREE)	REQUIREMENT	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	0
CHROMIUM UNF.TOT.	ACTUAL	0.4	0.3	0.4	0.5	0.8	0.5	0.4	0.3	0.2	0.4	0.7	0.6	0.458	
KG /DAY (CRUT)	REQUIREMENT	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	0
COPPER UNF.TOT.	ACTUAL	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.5	0.9	0.8	0.6	0.45	
KG /DAY (CUUT)	REQUIREMENT	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	0
IRON UNF.TOT.	ACTUAL	20	18.7	15.2	15.5	42.5	20.7	14	18.2	6.7	15.3	36.6	24.1	20.6	
KG /DAY (FEUT)	REQUIREMENT	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	0
NH3-N TOTAL	ACTUAL	6.1	5.7	7.6	5.2	4.4	9	7.3	4.9	4.1	6.1	3.8	3.6	5.65	
KG /DAY (NNHTUR)	REQUIREMENT	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	0
LEAD UNF.TOT.	ACTUAL	4.7	3.6	2	10.6	18.4	3.5	2	0.15	3.3	5.3	7.5	3.5	5.38	
KG /DAY (PBUT)	REQUIREMENT	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	1
PHENOLS UNF-REAC	ACTUAL	0.0374	0.039	0.048	0.041	0.044	0.047	0.034	0.052	0.025	0.04	0.039	0.047	0.041	
KG /DAY (PHNOL)	REQUIREMENT	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0

PHOSPHOR UNF.TOT.	ACTUAL	3.4	2.8	3.1	2.9	3.51	3.59	3.87	2.32	1.84	3.01	4.18	7.4	3.49	
KG /DAY (PPUT)	REQUIREMENT	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	0
RESIDUE PARTIC.	ACTUAL	405.5	395.5	173.2	236.4	433.1	407.3	277.7	172	132	240.5	450.2	244.3	297	
KG /DAY (RSP)	REQUIREMENT	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	0
SOLVENT EXTRACT.	ACTUAL	97.6	94.7	100.5	93.1	119.3	80.7	58.1	34.8	50.6	72.3	83.5	74	79.9	
KG /DAY (SOLEXT)	REQUIREMENT	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	0
ZINC UNF.TOT.	ACTUAL	3.5	4.5	5.4	3.6	5.8	4.4	1.8	1.3	0.6	3.6	7.7	6	4.02	
KG /DAY (ZNUT)	REQUIREMENT	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 144, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1988.

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000095-01-0(5)    STELCO INC. LAKE ERIE WORKS                      NANTICOKE                                                      REPORT DATE: 10 MAY 89
CONTROL POINT: 0200 DATA FOR 1988                                                                                                        ANNUAL     TOTAL
FLOW/LOADING         PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                   ACTUAL                   9707                       0       0                            3392    3392          3298
M3 /DAY (FTFLOW)   REQUIREMENT

BOD 5 DAY              ACTUAL                   48.6                       0       0                              17      17          16.5
KG /DAY (BOD5 )      GUIDELINE                   146                       0       0                            50.9    50.9          49.5       0

PHOSPHOR UNF.TOT.      ACTUAL                    6.8                       0       0                               3       3          2.56
KG /DAY (PPUT )      GUIDELINE                  9.71                       0       0                            3.39    3.39           3.3       0

RESIDUE PARTIC.        ACTUAL                    194                       0       0                                                  64.7
KG /DAY (RSP )       GUIDELINE                   146                       0       0                                                  48.5       1

NOTE: S/C -SEE COMMENT.  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS        -
***********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   1 OUT OF   13, FOR A TOTAL COMPLIANCE RECORD OF  92% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Stelco Page Hersey Works Welland	IMIS NO.: 0000950303
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	Iron and Steel	SIC CODE: 292
RECEIVING WATERBODY:	DIRECT: Welland Canal INDIRECT:	

DESCRIPTION OF ACTIVITY: Small diameter seamless pipe is made from steel billets.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through a diffuser

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Company treating effluent for PCB contamination in sand/carbon filter system. Treatment system is approved under REG 11/82 Direction.

07/19/89

000095-03-0(3) STELCO PAGE HERSHEY WELLAND REPORT DATE: 05 AUG 89

CONTROL POINT: 0300 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6541.5	8590.8	12504.6	13082.4	13082.4	13082.4	14063.5	14243.5	9632	9757.3	8301	8765	10970	
M3 /DAY (FTFLOW)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	3.27	6.87	12.5	8.63	5.23	9.15	2.81	4.55	2.88	5.85	4.98	16.65	6.95	
KG /DAY (FEUT)	GUIDELINE	32.7	43	62.5	65.41	65.41	65.41	70.32	71.22	48.16	48.79	41.51	43.83	43.95	0
RESIDUE PARTIC.	ACTUAL	5.23	2.58	33.8	3.924	0	0	28.83	0	0	0	0	0	6.2	
KG /DAY (RSP)	GUIDELINE	98.1	129	187.57	196.24	196.24	196.24	210.95	213.65	144.48	146.36	124.52	131.48	164.57	0
SOLVENT EXTRACT.	ACTUAL	1.96	4.3	21.2	11.77	0	0	40.08	1.42	3.37	2.93	0	0	7.25	
KG /DAY (SOLEXT)	GUIDELINE	98.1	129	187.57	196.24	196.24	196.24	210.95	213.65	144.48	146.36	124.52	131.48	164.57	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Stelco Welland Tube Works Welland	IMIS NO.: 0000950204
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	Iron and Steel	SIC CODE: 292

RECEIVING WATERBODY: DIRECT: Lyons Creek to Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Flat steel is made into very large diameter pipe.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Oil water separation.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: Company exceeded total suspended solids for two months and iron for one month.

REMEDIAL ACTIONS: Company to install secondary treatment for processed wastewater in 1990. Original application for treatment system was submitted in July, 1989. The application was inadequate and was returned to the company. Stelpipe is redesigning the treatment system. The application is to be submitted in November, 1989.

COMMENTS: Exceedances were marginal and company attributed to storm runoff condition.

Two of three trout bioassays in 1988 indicated the Lagoon Outfall effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 25.9% and 77.0%.

07/19/89

000095-02-0(4)   STELCO WELLAND TUBES   WELLAND   REPORT DATE: 05 AUG 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	21.1	79	841.6	414.1	363.8	438.1	426.3	769.9	633.7	1868.8	741.8	951.1	629.1	
M3 /DAY (FTFLOW)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	0.008	0.032	0.084	0.87	0.44	0.44	0.9	2.7	3.61	1.68	0.052	1.43	0.929	
KG /DAY (FEUT)	GUIDELINE	0.105	0.395	4.208	2.071	1.819	2.191	2.132	3.85	3.169	9.34	3.71	4.756	0.264	1
RESIDUE PARTIC.	ACTUAL	0.078	0.15	0.11	4.06	2.11	5.3	6.52	7.7	18.4	16.87	3.78	22.73	7.48	
KG /DAY (RSP)	GUIDELINE	0.317	1.185	12.624	6.211	5.457	6.572	6.395	11.549	9.506	28.029	11.127	14.267	8.25	2
SOLVENT EXTRACT.	ACTUAL	0.021	0.021	0.44	0.66	0.36	0.53	1.28	0	3.54	3.55	0.74	0.95	1.01	
KG /DAY (SOLEXT)	GUIDELINE	0.317	1.185	12.624	6.211	5.457	6.572	6.395	11.549	9.506	28.029	11.127	14.267	8.25	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OF 36,FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Strathcona Paper Company
& PLANT LOCATION: Camden East Twp.

IMIS NO.: 0001740000

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Napanee River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Wastepaper is cleaned and repulped to form coated paperboards.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: "Savealls" and a whitewater recycle system plus a "Krofta" clarifier have reduced the solids discharged to a system of seven sedimentation and aeration lagoons (75 horsepower).

DISCHARGE TYPE: One continuous on-shore outfall from lagoon system (control point 0200).

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Permitted loadings are a function of Napanee River flows as detailed on Certificate of Approval #4-024-86-876 dated May 28, 1987.

MOE OR FEDERAL GUIDELINES: Suspended solids guideline based on Federal Pulp and Paper Effluent Regulation - based on an average monthly production of approx. 170 tonnes/day and an allowable suspended suspended solids (RSP) of 7.5 kg/tonne of production, the 1988 allowable was 1275 kg/day.

EXCEEDANCES: None.

REMEDIAL ACTIONS: None.

COMMENTS: New flow monitoring installation and single outfall installed in 1987.

Four trout bioassays in 1988 indicated the final effluent to have been non-acutely lethal to the test fish.

05/02/89

000174-00-0(0) STRATHCONA PAPER COMPANY (STRATHCONA) NAPANEE REPORT DATE: 19 OCT 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3565	3678	3737	3845	4061	4161	4308	3582	3461	3724	3895	3573	3799	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	330	370	378	97	88	85	66	43	56	89	274	254	178	
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0
RESIDUE PARTIC.	ACTUAL	142	135	138	128	161	91	126	86	111	137	102	126	124	
KG /DAY (RSP)	GUIDELINE	1275	1275	1275	1275	1275	1275	1275	1275	1275	1275	1275	1275	1275	0

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24. FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Suncor Sunoco Group
& PLANT LOCATION: Sarnia

IMIS NO.: 0000490102

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Once through cooling water receives gravity separation before discharge. Process and storm water receive both primary and secondary treatment before discharge.

DISCHARGE TYPE: continuous at shore

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes

EXCEEDANCES: None.

REMEDIAL ACTIONS: None.

COMMENTS:

One trout bioassay in 1988 indicated the Process Water effluent to have been non-acutely lethal to the test fish.

07/29/89

000049-01-0(2)   SUNCOR INC.   (SUNOCO DIVISION)   PO BOX 307 SARNIA   REPORT DATE: 20 OCT 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	79670.2	81206.8	84498.1	95336	102056	102078	104047	105447	106093	107393	99777.5	92371.9	96664	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	7.8	7.5	7.3	7.4	7.4	7.8	7.8	7.5	7.7	7.5	7.4	7.59	
(PH)	GUIDELINE														0
CHLORIDE UNF.REAC	ACTUAL	2264	2075	2199	2372	2366	933	1869	1453	1916	3737	2660	0	1987	
KG /DAY (CLIDUR)	GUIDELINE														
NH3-N TOTAL	ACTUAL	25	19	46	19	36	25	18	0*	16	15	0*	7.41	17.5	
KG /DAY (NNHTFR)	GUIDELINE	797	812	845	953	1021	1021	1040	1054	1061	1074	998	924	967	0
PHENOLS UNF-REAC	ACTUAL	1	0.43	0.02	0.07	0.15	0.29	0.14	0*	0.04	0.07	0.11	0.03	0.188	
KG /DAY (PHNOL)	GUIDELINE	1.59	1.62	1.69	1.91	2.04	2.04	2.08	2.11	2.12	2.15	2	1.85	1.93	0
RESIDUE FILTERED	ACTUAL	8358	6500	5873	7871	8814	7350	5976	5069	8446	8115	8288		7333	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	420	183	352	244	51	0*	388	449	43	298	312	286	219	
KG /DAY (RSP)	GUIDELINE	1195	1218	1267	1430	1531	1531	1561	1582	1591	1611	1497	1386	1450	0
SOLVENT EXTRACT.	ACTUAL	74	29	72	33	36	44	89	13	83	8	41	24.99	45.6	
KG /DAY (SOLEXT)	GUIDELINE	1171	1194	1242	1194	1242	1411	1500	1500	1559	1578	1467	1352	1367	0
SULPHIDE UNF.REAC	ACTUAL	0	0.2	0.1	0	0	0.2	0	0.2	0	0.5	0.2	0.1	0.125	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	176	74	151	135	209	127	148	36	402	88	172	167.6	157	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Teck-Corona Inc.
& PLANT LOCATION: Marathon
IMIS NO.: 0031750003

MOE REGION: Northwest
DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Lim Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, pH, cyanide

EFFLUENT TREATMENT: Approved treatment utilizing sulphur dioxide/air process and a metal precipitation stage utilizing precipitation with ferric sulphate. Disposal area decant to Lim Lake. Mill site sedimentation pond effluent to Cedar Creek.

DISCHARGE TYPE: continuous during seasonal discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): June 1985. Requirements set out under 'Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981'

EXCEEDANCES: None. In compliance.

REMEDIAL ACTIONS:

COMMENTS: Treatment process modifications are being examined.

Two trout bioassays conducted in 1988 indicated the final treated effluent to have been non-acutley lethal to the test fish.

07/31/89

003175-00-0(3)   TECK-CORONA OPERATING CORPORATION   MARATHON   REPORT DATE: 26 JUNE 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3060	3080	2580	2690	3490	2630	2210	2130	2280	2300	1820	1540	2484	
M3 /DAY (FTFLOW)	REQUIREMENT														
ARSENIC UNF.TOT.	ACTUAL	0.001	0.001	0.008	0.003	0.004	0.001	0.002	0.003	0.003	0.001	0.001	0.002	0.003	
MG/L (ASUT)	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
CYANIDE AVAIL	ACTUAL	0.049	0.12	0.38	0.3	0.13	0.044	0.03	0.02	0.028	0.091	0.47	1.41	0.256	
MG/L (CCNAUR)	REQUIREMENT														
CYANIDE FREE	ACTUAL	0.04	0.07	0.32	0.28	0.1	0.033	0.008	0.005	0.015	0.022	0.205	0.763	0.155	
MG/L (CCNFUR)	REQUIREMENT														
COPPER UNF.TOT.	ACTUAL	0.026	0.022	0.27	0.13	0.052	0.006	0.006	0.003	0.004	0.007	0.083	0.69	0.108	
MG/L (CUUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL	0.295	0.255	0.273	0.255	0.15	0.06	0.118	0.144	0.007	0.019	0.25	0.21	0.17	
MG/L (FEUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
MERCURY UNF.TOT.	ACTUAL	0.07	0.12	0.05	0.05	0.133	0.05	0.062	0.05	0.08	0.05	0.05	0.12	0.074	
UG/L (HGUT)	REQUIREMENT														
PH	ACTUAL	7.14	6.95	6.78	6.89	7.07	7.12	7.19	7.06	7.21	6.85	6.83	7.01	7.01	
(PH)	REQUIREMENT														0
ZINC UNF.TOT.	ACTUAL	0.01	0.011	0.01	0.017	0.009	0.007	0.012	0.007	0.011	0.011	0.01	0.008	0.01	
MG/L (ZNUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Tend-R-Fresh Div. Maple Leaf Mills Poultry Products Inc.,
& PLANT LOCATION: Petersburg

IMIS NO.: 0001490002

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1012

RECEIVING WATERBODY: DIRECT: Alder Creek to Nith River to Grand River
INDIRECT: 195 km to Lake Erie

DESCRIPTION OF ACTIVITY: Birds are slaughtered, processed, readied for retail sale.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and phosphorus.

EFFLUENT TREATMENT: Screening, aeration, phosphorus removal, sedimentation and chlorination.

DISCHARGE TYPE: seven day continuous flow through an open outfall

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Company has Certificate of Approval for wastewater treatment plant modifications, to be completed during 1988. Monthly requirements are those of C. of A.

EXCEEDANCES: Yes. BOD5, ammonium-nitrogen, phosphorus, suspended solids, oil & grease.

REMEDIAL ACTIONS: Company applied in October 1988 for revision to C. of A issued May 1988, due to downsized production plans; interim measures have achieved effluent compliance since January 1989 of all parameters except ammonium-nitrogen.

COMMENTS: Plant was closed in July 1989.

10/01/89

000149-00-0(2)   TEND-R-FRESH DIVISION   PETERSBURG   REPORT DATE: 01 AUG 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	612.03	544.2	744.04	1369.5	1590.48	1790.78	2105.26	1734.92	1501.5	1611.95	1419.63	1229.57	1354	
M3 /DAY (FTFLOW)	REQUIREMENT	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	0
BOD 5 DAY	ACTUAL	13.07	4.2	28.69	40.36	15.45	76.54	25.5	26.62	14.25	16.5	61.07	11.12	27.8	
KG /DAY (BOD5)	REQUIREMENT	32	32	32	32	32	32	32	32	32	32	32	32	32	3
NH3-N TOTAL	ACTUAL	13.95	11.77	21.07	34.11	20.7	32.92	28.71	12.69	5.66	5.37	3.05	9.8	16.6	
KG /DAY (NNHTFR)	REQUIREMENT	8	8	8	8	8	8	8	8	8	8	8	8	8	9
PH	ACTUAL	7.62	7.52	7.78	7.66	7.75	7.44	6.88	6.68	7.4	7.41	7.39	6.93	7.37	0
(PH)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	0.65	0.21	1.74	2.73	2.67	5.14	2.63	3.91	0.69	0.95	7.66	0.66	2.47	
KG /DAY (PPUT)	REQUIREMENT	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	7
RESIDUE PARTIC.	ACTUAL	31.34	8.13	66.58	127.75	13.6	92.56	54.3	153.86	29	17.9	284.6	28	75.6	
KG /DAY (RSP)	GUIDELINE	32	32	32	32	32	32	32	32	32	32	32	32	32	6
SOLVENT EXTRACT.	ACTUAL	6.65	1.32	11.12	19.37	7.01	32.22	29.61	17.93	16.32	15.57	2.76	7.11	13.9	
KG /DAY (SOLEXT)	REQUIREMENT	24	24	24	24	24	24	24	24	24	24	24	24	24	2

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 27 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 68% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Texaco Canada Ltd
& PLANT LOCATION: Port Credit

IMIS NO.: 0000520106

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 365

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Primary (API separator and settling pond).

DISCHARGE TYPE: Intermittent.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario Effluent Quality Objectives for Petroleum Refineries.

EXCEEDANCES: In compliance.

REMEDIAL ACTIONS:

COMMENTS: Decommissioning activities.

07/22/89

000052-01-0(6) TEXACO CANADA INC. MISSISSAUGA REPORT DATE: 20 OCT 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6819.13	5.4553	5.4553	181.843	6819.13	5.4553	0	0	0	0	4.54609		1258	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7.9	7.6	7.6	7.6	7.7					7.2		7.6	
(PH)	GUIDELINE														0
CHEM. OX DEMAND	ACTUAL							0	0	0	0	0	0	0	
KG /DAY (COD)	GUIDELINE							0	0	0	0	0.909	0	0.152	0
NH3-N FIL.REAC	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (NNH3FR)	GUIDELINE	68.2	0.055	0.055	1.82	68.2	0.055	0	0	0	0	0.045	0	11.5	0
PHENOLS UNF-REAC	ACTUAL	0.01	0	0	0	0.01	0	0	0	0	0	0	0	0.002	
KG /DAY (PHNOL)	GUIDELINE	0.136	0	0	0.004	0.136	0	0	0	0	0	0	0	0.023	0
RESIDUE PARTIC.	ACTUAL	13.6	0.008	0	0.04	8.15	0	0	0	0	0	0.01	0	1.82	
KG /DAY (RSP)	GUIDELINE	102	0.082	0.082	2.73	102	0.082	0	0	0	0	0.068	0	17.3	0
SOLVENT EXTRACT.	ACTUAL	11.6	0.002	0.01	0.5	2.7	0.005	0	0	0	0	0.005	0	1.24	
KG /DAY (SOLEXT)	GUIDELINE	68.2	0.055	0.055	1.82	68.2	0.055	0	0	0	0	0.045	0	11.5	0

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 61, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION:	Texaco Canada Inc. (Nanticoke Refinery) Jarvis	IMIS NO.: 0000520205
MOE REGION:	West Central	DISTRICT: Haldimand-Norfolk/Brant
INDUSTRIAL SECTOR:	Petroleum Refining	SIC CODE: 3651
RECEIVING WATERBODY:	DIRECT: Lake Erie. INDIRECT:	

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Primary oil separation, equalization, dissolved air flotation, biological treatment, clarification and filtration, and final holding ponds.

DISCHARGE TYPE: continuous through a submerged diffuser

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Federal Petroleum Refinery Regulations and Guidelines.

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Degree of air cooling is maximized.

07/22/89

000052-02-0(5) TEXACO CANADA INC. (NANTICOKE REFINERY) JARVIS REPORT DATE: 16 OCT 89

CONTROL POINT: 0200 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5334.6	6763.5	7368.2	6429	6198	6799	7799.1	7200.9	5855.7	5907.9	5402.9		6805	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	ACTUAL	0	0.29	0.57	0.25	0	0.92	0.2	0.07	0	0.03	0.59		0.266	
KG /DAY (NNHTUR)	GUIDELINE	53.34	67.6	75.7	64.3	62	68	78	72	58.6	59.1	54		59.9	0
PH	ACTUAL	7.766	7.713	8.32	7.929	7.8	7.95	7.6	7.75	7.85	7.75	7.93		7.85	0
(PH)	REQUIREMENT														
PHENOLS UNF-REAC	ACTUAL	0.009	0	0	0.0045	0.0136	0.0136	0.018144	0.004536	0.018144	0.004536	0.004536		0.0082	
KG /DAY (PHNOL)	GUIDELINE	0.107	0.135	0.151	0.128	0.124	0.136	0.156	0.144	0.117	0.118	0.108		0.1295	0
RESIDUE PARTIC.	ACTUAL	0	0	0	0	0	4	1.46	0	0	0	0		0.496	
KG /DAY (RSP)	GUIDELINE	80.01	101	114	96.4	93	102	117	108	87.8	88.6	81		97.17	0
SOLVENT EXTRACT.	ACTUAL	4.58	0	10.6	5.5	6.43	8.26	0	3.84	0	5.39	0.96		4.14	
KG /DAY (SOLEXT)	GUIDELINE	53.34	67.6	75.7	64.3	62	68	78	72	58.6	59.1	54		64.79	0
SULPHIDE UNF.REAC	ACTUAL	0	0	0	0	0	0.06	0.12	0.04	0.02	0	0.06		0.027	
KG /DAY (SSIDUR)	GUIDELINE														

NOTE: S/C -SEE COMMENT. 0* INDICATES INTAKE EXCEEDED DISCHARGE. PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 55, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: & PLANT LOCATION: The Algoma Steel Corp. Ltd.
(Algoma Ore Div.)
Wawa

IMIS NO.: 0000040105

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 058

RECEIVING WATERBODY: DIRECT: Magpie R.
INDIRECT: 10 km to Lake Superior

DESCRIPTION OF ACTIVITY: Sulphur bearing iron ore is roasted to make iron sinter.

EFFLUENT CHARACTERISTICS: Contains suspended solids and dissolved metal sulphates.

EFFLUENT TREATMENT: Tailings pond system (3 ponds) in series.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Yes. pH, RSP (suspended solids)

REMEDIAL ACTIONS:

COMMENTS: Resolution of total suspended solids exceedances being persued with Algoma Steel.

08/01/89

000004-01-0(5)   THE ALGOMA STEEL CORPORATION,LIMITED   WAWA   REPORT DATE: 11 MAY 89
CONTROL POINT: 0100 DATA FOR 1988

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
COPPER UNF.TOT.	ACTUAL								0.03					0.03	
MG/L AS CU	GUIDELINE								S/C						
PH	ACTUAL	11.3	11.1		9.4		5.7	8.3	7.4	4.8	5.8		10.9	8.3	
(PH)	GUIDELINE														4
RESIDUE PARTIC.	ACTUAL	13	16		14		2.5		5.5	7.5	6		30	11.8	
MG/L (RSP)	GUIDELINE	15	15		15		15		15	15	15		15	15	2
SULPHATE UNF.REAC	ACTUAL				20									20	
MG/L AS SO4	GUIDELINE				750									750	0
ZINC UNF.TOT.	ACTUAL		0.16		0.03		0.02		5.2					1.35	
MG/L AS ZN	GUIDELINE		S/C		S/C		S/C		S/C						

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 67% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: The Canadian Salt Company Ltd.
& PLANT LOCATION: Windsor

IMIS NO.: 0001040005

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 079, 793

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Salt is mined and prepared for use.

EFFLUENT CHARACTERISTICS: Contains dissolved salt (chlorides).

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None.

REMEDIAL ACTIONS: Initiating program with company to combine certain flow and recycle to brine fields.

COMMENTS:
In 1988, two trout bioassays indicated that both the Condensate effluent, and the Main Sewer effluent, were not acutely lethal to the test fish.

07/29/89

000104-00-0(5) THE CANADIAN SALT COMPANY LIMITED WINDSOR REPORT DATE: 01 AUG 89

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	23666	24236	20111	20111	20111	20111	20111	20111	20111	20111	20111	20111	20751	
M3 /DAY (FTFLOW)	GUIDELINE														
ALK TOTAL	ACTUAL			18			2	2	4		2	4	2	4.86	
KG /DAY (ALKT)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	11803	15554	25578	17827	13574	28960	26934	16414	32155	26575	23412	17232	21335	
KG /DAY (CLIDUR)	GUIDELINE														
PH	ACTUAL	8	8	8.05	8.1	8.15	8	8.15	8.15	8.1	7.85	7.8	7.8	8.01	0
(PH)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	20496	27195	41838	31394	24150	47577	46126	28055	57037	45764	39743	29276	36554	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	34	114	279	129	143	41	74	129	77	63	81	76	103	
KG /DAY (RSP)	GUIDELINE	355	364	302	302	302	302	302	302	302	302	302	302	193	0
RESIDUE TOTAL	ACTUAL	20530	27309	42117	31523	24293	47618	46200	28184	52525	45827	39824	29352	36275	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, D* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Trent Valley Paperboard Mills
& PLANT LOCATION: A Division of Paperboard Industries Corporation
Trenton

IMIS NO.: 0001750009

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Trent River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Wastepaper is repulped to form coated paperboards

EFFLUENT CHARACTERISTICS: Suspended solids and BOD5 concentrations vary depending on wastewater

EFFLUENT TREATMENT: "Saveall" screens and two "Krofta" clarifiers remove solids

DISCHARGE TYPE: Continous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Effluent objective for suspended solids set out in Certificate of Approval #4-001-82-006 dated February 3rd, 1982 is 140 kg/day

EXCEEDANCES: Yes.

REMEDIAL ACTIONS: See comments.

COMMENTS: Suspended solids effluent objective of 140 kg/day set out in Certificate of Approval still under review. Receiving water studies have not identified an effluent impact with respect to BOD. Company preparing submission to demonstrate that exisitng effluent quality is equivalent to that from a mill employing optimized 'Best available Technology'. Company has also engaged a consultant to address toxicity problem

Four trout bioassays in 1988 by MOE indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 7.1% to 50.0%. Twelve bioassays by Beak Laboratories ranged from 11.0% to 95% with an average of 55.1%.

07/22/89

000175-00-0(9) TRENT VALLEY PAPERBOARD MILLS GLEN MILLER

CONTROL POINT: 0100 DATA FOR 1988 REPORT DATE: 08 AUG 89

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3411	3770	3393	3725	3817	3827	3907	4055	4897	4031	4439	4043	3943	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1617	2714	907	3587	3611	1722	4005	2745	3839	3104	3644	3538	2919	
KG /DAY (BOD5)	GUIDELINE	-	-	-	-	-	-	-	-	-	-	-	-		
RESIDUE FILTERED	ACTUAL	3380	4607	4011	4194	4367	3923	4329	5397	4319	4507	4998	5013	4420	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1051	754	621	708	485	540	449	495	877	568	546	388	624	
KG /DAY (RSP)	REQUIREMENT	140	140	140	140	140	140	140	140	140	140	140	140	140	12

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Washington Mills Ltd.
& PLANT LOCATION: Niagara Falls

IMIS NO.: 0001950005

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Industrial Abrassives

SIC CODE: 357

RECEIVING WATERBODY: DIRECT: Welland R.
INDIRECT: 11 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT CHARACTERISTICS: Contains dissolved organic compounds and organic processing compounds

EFFLUENT TREATMENT: Oil water separation.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: Company exceeded total suspended solids guidelines. Note: Net loadings are in compliance

REMEDIAL ACTIONS: Improved maintenance program on silk curtain undertaken by company in early 1989 and has been in compliance since.

COMMENTS: Discharge control equipment malfunction accounted for suspended solids exceedances. Wastewater is furnace cooling water only.

07/19/89

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000195-00-0(5)    WASHINGTON MILLS LIMITED                      NIAGARA FALLS
CONTROL POINT: 0100 DATA FOR 1988                                                                                          REPORT DATE: 05 AUG 89
FLOW/LOADING      PARAMETERS                                                                                                       ANNUAL     TOTAL
                                   JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC  AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------
FLOW                 ACTUAL       1900   1900   1900   1900   1900   1900   1900   1900   1900   1900   1900   1900    1900
M3 /DAY (FTFLOW)  GUIDELINE

PH                   ACTUAL        7.1    7.1    7.1    7.2    7.2    7.1    7.1    7.1      7    7.1      7      7    7.09
(PH )             GUIDELINE

RESIDUE PARTIC.      ACTUAL                                     19.95                                               19.9
KG U EINSTN       GUIDELINE                                     -

RESIDUE PARTIC.      ACTUAL       11.4  38.95   30.4   30.4  18.05  19.95   24.7  44.65   17.1  25.65     19  29.45    25.8
KG /DAY (RSP )    GUIDELINE       28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5    28.5       5

SOLVENT EXTRACT.     ACTUAL          0      0      0      0      0      0      0      0      0      0      0      0       0
KG /DAY (SOLEXT)  GUIDELINE       28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5   28.5    28.5       0

NOTE: S/C -SEE COMMENT.  0* INDICATES INTAKE EXCEEDED DISCHARGE.  PH-LIMITS      -
****************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   5 OUT OF  24. FOR A TOTAL COMPLIANCE RECORD OF  79% IN 1988.
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WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Washington Mills
& PLANT LOCATION: (previously reported as: Sohio)
Niagara Falls

IMIS NO.: 0001660000

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 357

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces

EFFLUENT CHARACTERISTICS: There are two discharges, both to Welland River; results are composites of all discharges

EFFLUENT TREATMENT: Process wastewater treatment consists of oil-water separation

DISCHARGE TYPE: continuous through an outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objective for the Control of Industrial Waste Discharges in Ontario

EXCEEDANCES: None.

REMEDIAL ACTIONS:

COMMENTS: Exceedances due to process upsets in furnace hydraulics. Wastewater is furnace cooling water only.

07/19/89

000166-00-0(0)   WASHINGTON MILLS LIMITED   NIAGARA FALLS   REPORT DATE: 05 AUG 89

SUMMARY FOR EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA   DISCHARGED INTO: 02/004/5400 WELLAND RIVER.

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	13680	16142	5845.83	19665	19665	19665	19665	19665	19665	19665	19665	19665	17721	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.55	8.235	7.97	8.03	8.17	8.045	8.04	7.86	8.01	8.045	8.11	7.91	8	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	180.6	142.8	25.5	141.3	123.1	247.6	278.2	13.8	152.2	216.4	287.7	195.2	167	
KG /DAY (BOD5)	GUIDELINE	205	242	87.7	295	295	295	295	207	295	295	295	295	259	0
PHOSPHOR UNF.TOT.	ACTUAL	2.16	0.599	0.538	0.58	0	0.28	0	1.46	0	0.41	0.28	0.45	0.563	
KG /DAY (PPUT)	GUIDELINE	13.7	16.1	5.85	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	17.7	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

WASTEWATER DISCHARGE SUMMARY
1988

COMPANY NAME: Wickes Manufacturing Co. Ltd.
& PLANT LOCATION: Bumper Division - Windsor Plant

IMIS NO.: 0001060003

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 304

RECEIVING WATERBODY: DIRECT: Little R.
INDIRECT: 3.3 km to Detroit River

DESCRIPTION OF ACTIVITY: Steel parts for the automobile industry are plated

EFFLUENT CHARACTERISTICS: Contains dissolved metals like nickel, zinc and chromium.

EFFLUENT TREATMENT: Chemical precipitation and sedimentation, reduction of water useage.

DISCHARGE TYPE: Continuous five days a week

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Issued May 1988. Effective date May 12, 1989.

MOE OR FEDERAL GUIDELINES: Yes

EXCEEDANCES: Exceedance of suspended solids, nickel and pH guidelines.

REMEDIAL ACTIONS: Construction of a new building to house the wastewater treatment works and installation of treatment plant equipment have been completed. Start-up date for the new works was May 12, 1989. A new sewer was constructed by the company in July 1988 to provide access to the nearest City trunk sewer.

COMMENTS: After full-scale operation for a period of about 6 months, it is expected that Wickes treated effluent will be diverted to the City of Windsor's Little River Pollution Control Plant. The pretreatment provided by Wickes will meet the effluent quality required by the City's Sewer Use By-Law.

In 1988, one trout bioassay indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 80.6%.

07/29/89

000106-00-0(3) WICKES MANUFACTURING COMPANY LTD. WINDSOR REPORT DATE: 08 MAY 89

CONTROL POINT: 0100 DATA FOR 1988

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	512	743	897	1006	856	906	893	770	775	779	847	964	829	
M3 /DAY (FTFLOW)	GUIDELINE														
CHROMIUM UNF.TOT.	ACTUAL	0.29	0.4	0.44	0.6	0.56	0.44	0.34	0.55	0.47	0.7	0.53	0.67	0.499	
KG /DAY (CRUT)	GUIDELINE	0.512	0.743	0.897	1.01	0.856	0.906	0.893	0.77	0.775	0.779	0.847	0.964	0.829	0
CHROMIUM +6	ACTUAL	0.14	0.24	0.22	0.27	0.25	0.24	0.16	0.26	0.21	0.31	0.27	0.28	0.238	
KG /DAY (CR6UR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.11	0.13	0.14	0.14	0.07	0.06	0.098	0.06	0.1	0.09	0.08	0.106	0.099	
KG /DAY (CUUT)	REQUIREMENT	0.512	0.743	0.897	1.01	0.856	0.906	0.893	0.77	0.775	0.779	0.847	0.964	0.834	0
IRON UNF.TOT.	ACTUAL	0.21	0.27	0.12	0.28	0.39	0.42	0.32	0.18	0.28	0.14	0.21	0.27	0.258	
KG /DAY (FEUT)	REQUIREMENT	8.7	12.6	15.2	17.1	14.6	15.4	15.2	13.1	13.2	13.2	14.4	16.4	14.1	0
NICKEL UNF.TOT.	ACTUAL	0.71	0.97	1.17	1.14	0.83	0.72	0.89	0.77	0.85	1	0.93	1.22	0.933	
KG /DAY (NIUT)	REQUIREMENT	0.512	0.743	0.897	1.01	0.856	0.906	0.893	0.77	0.775	0.779	0.847	0.964	0.829	8
RESIDUE FILTERED	ACTUAL	1482	2068	3919	3857	3237	4123	2660	2181	2092	2044	3016	3029	2601	
KG /DAY (RSF)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL	13.6	30.1	30.8	29.1	21.8	22.2	28.4	15.9	18.9	23.8	20.6	26.9	297	
KG /DAY (RSP)	REQUIREMENT	7.68	11.1	13.5	15.1	12.8	13.6	13.4	11.6	11.6	11.7	12.7	14.5	12.5	12
ZINC UNF.TOT.	ACTUAL	0.17	0.27	0.25	0.31	0.33	0.28	0.16	0.2	0.23	0.19	0.23	0.18	0.234	
KG /DAY (ZNUT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 20 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 67% IN 1988.

APPENDIX B

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
ABITIBI-PRICE INC.	IROQUOIS FALLS	Hudson Bay	A-1
ABITIBI-PRICE INC. (Provincial Papers Division)	THUNDER BAY	Lake Superior	A-2
ABITIBI-PRICE INC. (Ft. William Division)	THUNDER BAY	Lake Superior	A-3
ABITIBI-PRICE INC. (Thunder Bay Division)	THUNDER BAY	Lake Superior	A-4
AGNICO EAGLE MINES LTD. (Penn Mill)	COBALT	Ottawa River	A-5
AGNICO EAGLE MINES LTD. (Refinery)	COBALT	Ottawa River	A-6
ALGOMA STEEL	SAULT STE. MARIE	St. Mary's River	A-7
AMERICAN STANDARD - Div. of WABCO	CAMBRIDGE	Lake Erie	A-8
ATLAS SPECIALTY STEEL COMPANY LTD.	WELLAND	Lake Ontario	A-9
AULT FOODS LTD.	WINCHESTER	St. Lawrence R.	A-10
BEAVER WOOD FIBRE COMPANY LTD.	THOROLD	Lake Ontario	A-11
B.F.GOODRICH	NIAGARA FALLS	Lake Ontario	A-12
BLACKSTONE INDUSTRIAL PRODUCTS LTD.	STRATFORD	Lake Erie	A-13
BOISE CASCADE CANADA LTD.	FORT FRANCES	Hudson Bay	A-14
BOISE CASCADE CANADA LTD.	KENORA	Hudson Bay	A-15
BTL SPECIALTY RESINS	BELLEVILLE	Lake Ontario	A-16
CAMECO (form. Eldorado Resources Ltd.)	BLIND RIVER	Lake Huron	A-17
CAMECO (form. Eldorado Nuclear Ltd.)	PORT GRANBY	Lake Ontario	A-18
CAMECO (form. Eldorado Nuclear Ltd.)	PORT HOPE	Lake Ontario	A-19
CAMECO (form. Eldorado Nuclear Ltd.)	WELCOME	Lake Ontario	A-20
CAMPBELL SOUP COMPANY LTD.	ST. MARYS	Lake Erie	A-21
CAMPBELL'S WELLINGTON MUSHROOM FARM	WELLINGTON	Lake Ontario	A-22
CANADIAN CANNERS LTD.	ST. DAVIDS	Lake Ontario	A-23
CANADIAN OXY-DUREZ	FORT ERIE	Lake Ontario	A-24
CANADIAN PACIFIC FOREST PRODUCTS (form. Great Lakes Forest Products)	DRYDEN	Hudson Bay	A-25
CANADIAN PACIFIC FOREST PRODUCTS (form. Great Lakes Forest Products)	THUNDER BAY	Lake Superior	A-26
CANAMAX LTD. Bell Creek Mine	PORCUPINE	Hudson Bay	A-27
CASCO INC.	CARDINAL	St. Lawrence R.	A-28
CELANESE CANADA INC.	TWP. OF ERNESTOWN	Lake Ontario	A-29
CHAMPLAIN INDUSTRIES LTD.	TARA	Lake Huron	A-30

APPENDIX B ...continued

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
C-I-L LTD.	CORNWALL	St. Lawrence R.	A-31
C-I-L LTD.	COURTRIGHT	Lake Erie	A-32
CORNWALL CHEMICALS LTD.	CORNWALL	St. Lawrence R.	A-33
COURTAULDS LTD. & BCL LTD.	CORNWALL	St. Lawrence R.	A-34
CYANAMID CANADA INC. (Niagara Plant)	NIAGARA FALLS	Lake Ontario	A-35
CYANAMID CANADA INC. (Welland Plant)	NIAGARA FALLS	Lake Ontario	A-36
DENISON MINES LTD.	ELLIOT LAKE	Lake Huron	A-37
DENISON MINES LTD. (Stanrock)	ELLIOT LAKE	Lake Huron	A-38
DENISON MINES LTD. (Williams Lake)	ELLIOT LAKE	Lake Huron	A-39
DETOUR LAKE MINE	TIMMINS	Hudson Bay	A-40
DICKENSON MINE LTD.	BALMERTON	Hudson Bay	A-41
DOFASCO INC.	HAMILTON	Lake Ontario	A-42
DOFASCO INC. - Adams Mine	KIRKLAND LAKE	Ottawa River	A-43
DOMTAR CHEMICALS LTD.	GODERICH	Lake Huron	A-44
DOMTAR CHEMICAL GROUP	ORILLIA	Lake Huron	A-45
DOMTAR FINE PAPERS	CORNWALL	St. Lawrence R.	A-46
DOMTAR FINE PAPERS	ST.CATHARINES	Lake Ontario	A-47
DOMTAR PACKAGING LTD.	RED ROCK	Lake Superior	A-48
DOMTAR PACKAGING	TRENTON	Lake Ontario	A-49
DOMTAR WOOD PRESERVING	TRENTON	Lake Ontario	A-50
DOW CHEMICAL OF CANADA LTD.	SARNIA	Lake Erie	A-51
DUPONT CANADA INC.	CORUNNA	Lake Erie	A-52
DUPONT CANADA INC.	KINGSTON TOWNSHIP	Lake Ontario	A-53
DUPONT CANADA INC.	MAITLAND	St. Lawrence R.	A-54
EASTMAQUE GOLD MINES	KIRKLAND LAKE	Ottawa River	A-55
E. B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	Lake Huron	A-56
E. B. EDDY FOREST PRODUCTS LTD.	OTTAWA	Ottawa River	A-57
ESSO CHEMICALS	SARNIA	Lake Erie	A-58
ESSO PETROLEUM CANADA	SARNIA	Lake Erie	A-59
ETHYL CANADA INC.	CORUNNA	Lake Erie	A-60
EXOLON	THOROLD	Lake Ontario	A-61
EXPLOSIVE TECHNOLOGIES INTERNATIONAL INC.	NORTH BAY	Lake Huron	A-62
FALCONBRIDGE LTD.	FALCONBRIDGE	Lake Huron	A-63
FALCONBRIDGE LTD., Kidd Creek Mine (Met. Site)	TIMMINS	Hudson Bay	A-64

APPENDIX B ...continued

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
FALCONBRIDGE LTD., Kidd Creek Mine (Mine Site)	TIMMINS	Hudson Bay	A-65
FALCONBRIDGE LTD., Lockerby Mine	ONAPING	Lake Huron	A-66
FALCONBRIDGE LTD., Moose Lale WWTS	ONAPING FALLS	Lake Huron	A-67
FALCONBRIDGE LTD., Onaping Mine	ONAPING FALLS	Lake Huron	A-68
FIBERGLAS CANADA LTD.	SARNIA	Lake Erie	A-69
FLEET MFG. COMPANY LTD.	FORT ERIE	Lake Ontario	A-70
FORD MOTOR COMPANY	NIAGARAFALLS	Lake Ontario	A-71
FORD MOTOR COMPANY	OAKVILLE	Lake Ontario	A-72
FORD MOTOR COMPANY	ST. THOMAS	Lake Erie	A-73
FORD MOTOR COMPANY	WINDSOR	Lake Erie	A-74
FRASER INCORPORATED	THOROLD	Lake Ontario	A-75
GAY LEE FOODS COOPERATIVE LTD.	TEESWATER	Lake Huron	A-76
G. E PLASTICS LTD., (form. Borg-Warner Chemicals)	COBOURG	Lake Ontario	A-77
GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	Lake Erie	A-78
GENERAL MOTORS OF CANADA LTD.	ST. CATHARINES	Lake Ontario	A-79
GIANT YELLOWKNIFE MINES LTD. - Pamour Mine	TIMMINS	Hudson Bay	A-80
GIANT YELLOWKNIFE MINES LTD. - Schumacher Mine	TIMMINS	Hudson Bay	A-81
GOLDEN SHIELD RESOURCES - KERR DIVISION.	VIRGINIATOWN	Ottawa River	A-82
HALEY INDUSTRIES	HALEY	Ottawa River	A-83
INCO LTD., Copper Cliff Creek Nickel Refinery	COPPER CLIFF	Lake Huron	A-84
INCO LTD., Copper Cliff Creek W.W.T.	COPPER CLIFF	Lake Huron	A-85
INCO LTD., Crean Hill Mine	COPPER CLIFF	Lake Huron	A-86
INCO LTD., Frood Stobie	COPPER CLIFF	Lake Huron	A-87
INCO LTD., Garson Mine	COPPER CLIFF	Lake Huron	A-88
INCO LTD., Levack Tailings Area	COPPER CLIFF	Lake Huron	A-89
INCO LTD., Nolin Creek	COPPER CLIFF	Lake Huron	A-90
INCO METALS COMPANY	PORT COLBORNE	Lake Erie	A-91
INTERNATIONAL MINERALS AND CHEMICAL CORP.	DUNNVILLE	Lake Erie	A-92
JAMES RIVER MARATHON LTD.	MARATHON	Lake Superior	A-93
J.M.SCHNEIDER INC.	AYR	Lake Erie	A-94
KIMBERLY-CLARK OF CANADA LTD.	HUNTSVILLE	Lake Huron	A-95
KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	Lake Ontario	A-96
KIMBERLY-CLARK OF CANADA LTD.	TERRACE BAY	Lake Superior	A-97
KRAFT LTD.	INGLESIDE	St. Lawrence R.	A-98

APPENDIX B ...continued

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
LAC D'AMIANTE DU QUEBEC LTEE. (Aquarius Mine)	PORCUPINE		A-99
LAC MINERALS (Macassa Division)	KIRKLAND LAKE	Ottawa River	A-100
LAC MINERALS (Page-Williams Division)	MARATHON	Lake Superior	A-101
LAKE ONTARIO CEMENT	PICTON	Lake Ontario	A-102
LEFARGE CANADA LTD.	BATH	Lake Ontario	A-103
MACMILLAN BLOEDEL LTD.	STURGEON FALLS	Lake Huron	A-104
MALETTE KRAFT PULP AND PAPER LTD.	SMOOTH ROCKFALLS	Hudson Bay	A-105
MATTABI MINES LTD.	DISTRICT OF KENORA	Hudson Bay	A-106
MCBEAN MINES LTD.	DOBIE	Ottawa River	A-107
MINNOVA WINSTON LAKE PROJECT	SCHREIBER	Lake Superior	A-108
MITSUBISHI ELECTRONICS INC.	MIDLAND	Lake Huron	A-109
NESTLE ENTERPRISES LTD.	CHESTERVILLE	Ottawa River	A-110
NITROCHEM	MAITLAND	St. Lawrence R.	A-111
NORANDA HEMLO INC.	MARATHON	Lake Superior	A-112
NORANDA INC. LYON LAKE DIV.	DISTRICT OF THUNDER BAY	Lake Superior	A-113
NORANDA MINES LIMITED GECO DIV.	MANITOUWADGE	Lake Superior	A-114
NORTHERN WOOD PRESERVERS	THUNDER BAY	Lake Superior	A-115
NORTON COMPANY	NIAGARA FALLS	Lake Ontario	A-116
NOVACOR LTD.	SARNIA	Lake Erie	A-117
OGILVIE MILLS LTD.	THUNDER BAY	Lake Superior	A-118
OMSTEAD FOODS LTD.	WHEATLEY	Lake Erie	A-119
ONTARIO HYDRO TGS, AtikoKan	ATIKOKAN	Lake Superior	A-120
ONTARIO HYDRO (Domestic STP)	TIVERTON	Lake Huron	A-121
ONTARIO HYDRO (Bruce NPGS A + B)	TIVERTON	Lake Huron	A-122
ONTARIO HYDRO (Heavy Water Plant)	TIVERTON	Lake Huron	A-123
ONTARIO HYDRO TGS., Lakeview	TORONTO	Lake Ontario	A-124
ONTARIO HYDRO TGS., Lennox	S. FREDERICKSBURG	Lake Ontario	A-125
ONTARIO HYDRO TGS., Lambton	COURTRIGHT	Lake Erie	A-126
ONTARIO HYDRO TGS, Nanticoke (Ash Lagoon)	NANTICOKE	Lake Erie	A-127
ONTARIO HYDRO TGS, Nanticoke	NANTICOKE	Lake Erie	A-128
ONTARIO HYDRO (NPGS A + B)	PICKERING	Lake Ontario	A-129
ONTARIO HYDRO TGS, Thunder Bay	THUNDER BAY	Lake Superior	A-130
ORENCO (Ontario Rendering)	DUNDAS	Lake Ontario	A-131
PETRO-CANADA PRODUCTS CO. (CLARKSON)	MISSISSAUGA	Lake Ontario	A-132
PETRO-CANADA PRODUCTS INC.	OAKVILLE	Lake Ontario	A-133
PETROSAR LTD.	CORUNNA	Lake Erie	A-134

APPENDIX B ...continued

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
PLACER - DOME LTD.	BALMERTON	Hudson Bay	A-135
PLACER - DOME LTD.	SOUTH PORCUPINE	Hudson Bay	A-136
POLYSAR LTD.	SARNIA	Lake Erie	A-137
QUEBEC AND ONTARIO PAPER COMPANY LTD.	THOROLD	Lake Ontario	A-138
REXWOOD PRODUCTS LTD.	NEW LISKEARD	Ottawa River	A-139
RIO ALGOM LTD. (Panel Mill)	ELLIOT LAKE	Lake Huron	A-140
RIO ALGOM LTD. (Quirke Mill)	ELLIOT LAKE	Lake Huron	A-141
RIO ALGOM LTD. (Stanleigh Mill)	ELLIOT LAKE	Lake Huron	A-142
ROHM AND HASS	CORNWALL	St. Lawrence	A-143
ROTHSAY LTD.	ROTHSAY	Lake Erie	A-144
SHELL CANADA LTD.	CORUNNA	Lake Erie	A-145
SHERMAN MINE	TEMAGAMI	Lake Huron	A-146
SHERWOOD POULTRY FARMS	DUNDAS	Lake Ontario	A-147
SPRUCE FALLS POWER & PAPER CO. LTD.	KAPUSKASING	Hudson Bay	A-148
STANCHEM	CORNWALL	St. Lawrence	A-149
STANLEY HARDWARE	NEW HAMBURG	Lake Erie	A-150
ST. MARYS PAPER INC.	SAULT STE MARIE	Lake Huron	A-151
STEETLEY TALC LTD.	TIMMINS	Hudson Bay	A-152
STELCO INC.	HAMILTON	Lake Ontario	A-153
STELCO INC., LAKE ERIE WORKS	NANTICOKE	Lake Erie	A-154
STELCO PAGE HERSEY	WELLAND	Lake Ontario	A-155
STELCO WELLAND TUBES	WELLAND	Lake Ontario	A-156
STRATHCONA PAPER COMPANY	TWP OF CAMDEN EAST	Lake Ontario	A-157
SUNCOR SUNOCO GROUP	SARNIA	Lake Erie	A-158
TECK-CORUNA INC.	MARATHON	Lake Superior	A-159
TEND-R-FRESH POULTRY LTD.	PETERSBURG	Lake Erie	A-160
TEXACO CANADA INC.	PORT CREDIT	Lake Ontario	A-161
TEXACO CANADA INC., NANTICOKE REFINERY	JARVIS	Lake Erie	A-162
THE ALGOMA STEEL CORPORATION LTD.	SAULT STE. MARIE	Lake Huron	A-163
THE CANADIAN SALT COMPANY LTD.	WINDSOR	Lake Erie	A-164
TRENT VALLEY PAPERBOARD MILLS	GLEN MILLER	Lake Ontario	A-165
WASHINGTON MILLS LTD. (form. SOHIO)	NIAGARA FALLS	Lake Ontario	A-166
WASHINGTON MILLS LTD.	NIAGARA FALLS	Lake Ontario	A-167
WICKES MANUFACTURING CO. LTD.	WINDSOR	Lake Erie	A-168

APPENDIX C

LIST OF SOURCES BY MAJOR WATERSHED BASIN

Company	Location	Page
HUDSON BAY		
ABITIBI-PRICE INC.	IROQUOIS FALLS	A-1
BOISE CASCADE CANADA LTD.	FORT FRANCES	A-14
BOISE CASCADE CANADA LTD.	KENORA	A-15
CANADIAN PACIFIC FOREST PRODUCTS	DRYDEN	A-25
CANAMAX LTD. Bell Creek Mine	PORCUPINE	A-27
DETOUR LAKE MINE	TIMMINS	A-40
DICKENSON MINE LTD.	BALMERTON	A-41
FALCONBRIDGE LTD., Kidd Creek Mine (Met. Site)	TIMMINS	A-64
FALCONBRIDGE LTD., Kidd Creek Mine (Mine Site)	TIMMINS	A-65
(form. Great Lakes Forest Products)		
GIANT YELLOWKNIFE MINES LTD. - Pamour Mine	TIMMINS	A-80
GIANT YELLOWKNIFE MINES LTD. - Schumacher Mine	TIMMINS	A-81
MALETTE PULP AND PAPER LTD.	SMOOTH ROCKFALLS	A-105
MATTABI MINES LTD.	DISTRICT OF KENORA	A-106
PLACER - DOME LTD.	BALMERTON	A-135
PLACER - DOME LTD.	SOUTH PORCUPINE	A-136
SPRUCE FALLS POWER & PAPER CO. LTD.	KAPUSKASING	A-148
STEETLEY TALC LTD.	TIMMINS	A-152
LAKE SUPERIOR		
ABITIBI-PRICE INC. (Provincial Papers Division)	THUNDER BAY	A-2
ABITIBI-PRICE INC. (Ft. William Division)	THUNDER BAY	A-3
ABITIBI-PRICE INC. (Thunder Bay Division)	THUNDER BAY	A-4
CANADIAN PACIFIC FOREST PRODUCTS (form. Great Lakes Forest Products)	THUNDER BAY	A-26
DOMTAR PACKAGING LTD.	RED ROCK	A-48
JAMES RIVER MARATHON LTD.	MARATHON	A-93
KIMBERLY-CLARK OF CANADA LTD.	TERRACE BAY	A-97
LAC MINERALS (Page-Williams Division)	MARATHON	A-101
MINNOVA WINSTON LAKE PROJECT	SCHREIBER	A-108

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LIST OF SOURCES BY MAJOR WATERSHED BASIN

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NORANDA INC. LYON LAKE DIV.	DISTRICT OF THUNDER BAY	A-113
NORANDA MINES LIMITED GECO DIV.	MANITOUWADGE	A-114
NORTHERN WOOD PRESERVERS	THUNDER BAY	A-115
OGILVIE MILLS LTD.	THUNDER BAY	A-118
ONTARIO HYDRO TGS, AtikoKan	ATIKOKAN	A-120
ONTARIO HYDRO TGS, Thunder Bay	THUNDER BAY	A-130
TECK-CORUNA INC.	MARATHON	A-159
THE ALGOMA STEEL CORP. LTD. (ORE DIVISION)	WAWA	A-163
LAKE HURON ... (includes St. Marys River)		
ALGOMA STEEL	SAULT STE. MARIE	A-7
CAMECO (form. Eldorado Resources Ltd.)	BLIND RIVER	A-17
CHAMPLAIN INDUSTRIES LTD.	TARA	A-30
DENISON MINES LTD.	ELLIOT LAKE	A-37
DENISON MINES LTD. (Stanrock)	ELLIOT LAKE	A-38
DENISON MINES LTD. (Williams Lake)	ELLIOT LAKE	A-39
DOMTAR CHEMICALS LTD.	GODERICH	A-44
DOMTAR CHEMICAL GROUP	ORILLIA	A-45
E. B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	A-56
EXPLOSIVE TECHNOLOGIES INTERNATIONAL INC.	NORTH BAY	A-62
FALCONBRIDGE LTD.	FALCONBRIDGE	A-63
FALCONBRIDGE LTD., Lockerby Mine	ONAPING	A-66
FALCONBRIDGE LTD., Moose Lale WWTS	ONAPING FALLS	A-67
FALCONBRIDGE LTD., Onaping Mine	ONAPING FALLS	A-68
GAY LEE FOODS COOPERATIVE LTD.	TEESWATER	A-76
INCO LTD., Copper Cliff Creek Nickel Refinery	COPPER CLIFF	A-84
INCO LTD., Copper Cliff Creek W.W.T.	COPPER CLIFF	A-85
INCO LTD., Crean Hill Mine	COPPER CLIFF	A-86
INCO LTD., Frood Stobie	COPPER CLIFF	A-87
INCO LTD., Garson Mine	COPPER CLIFF	A-88
INCO LTD., Levack Tailings Area	COPPER CLIFF	A-89
INCO LTD., Nolin Creek	COPPER CLIFF	A-90
KIMBERLY-CLARK OF CANADA LTD.	HUNTSVILLE	A-95

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LIST OF SOURCES BY MAJOR WATERSHED BASIN

Company	Location	Page
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MITSUBISHI ELECTRONICS INC.	MIDLAND	A-109
ONTARIO HYDRO (Domestic STP)	TIVERTON	A-121
ONTARIO HYDRO (Bruce NPGS A + B)	TIVERTON	A-122
ONTARIO HYDRO (Heavy Water Plant)	TIVERTON	A-123
RIO ALGOM LTD. (Panel Mill)	ELLIOT LAKE	A-140
RIO ALGOM LTD. (Quirke Mill)	ELLIOT LAKE	A-141
RIO ALGOM LTD. (Stanleigh Mill)	ELLIOT LAKE	A-142
SHERMAN MINE	TEMAGAMI	A-146
ST. MARYS PAPER INC.	SAULT STE MARIE	A-151
LAKE ERIE ... (includes St. Clair River, Lake St. Clair and Detroit River)		
AMERICAN STANDARD - Div. of WABCO	CAMBRIDGE	A-8
BLACKSTONE INDUSTRIAL PRODUCTS LTD.	STRATFORD	A-13
CAMPBELL SOUP COMPANY LTD.	ST. MARYS	A-21
C-I-L LTD.	COURTRIGHT	A-32
DOW CHEMICAL OF CANADA LTD.	SARNIA	A-51
DUPONT CANADA INC.	CORUNNA	A-52
ESSO CHEMICALS	SARNIA	A-58
ESSO PETROLEUM CANADA	SARNIA	A-59
ETHYL CANADA INC.	CORUNNA	A-60
FIBERGLAS CANADA LTD.	SARNIA	A-69
FORD MOTOR COMPANY	ST. THOMAS	A-73
FORD MOTOR COMPANY	WINDSOR	A-74
GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	A-78
INCO METALS COMPANY	PORT COLBORNE	A-91
INTERNATIONAL MINERALS AND CHEMICAL CORP.	DUNNVILLE	A-92
J.M.SCHNEIDER INC.	AYR	A-94
NOVACOR LTD.	SARNIA	A-117
OMSTEAD FOODS LTD.	WHEATLEY	A-119
ONTARIO HYDRO TGS., Lambton	COURTRIGHT	A-126
ONTARIO HYDRO TGS, Nanticoke (Ash Lagoon)	NANTICOKE	A-127
ONTARIO HYDRO TGS, Nanticoke	NANTICOKE	A-128
PETROSAR LTD.	CORUNNA	A-134

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Company	Location	Page
POLYSAR LTD.	SARNIA	A-137
ROTHSAY LTD.	ROTHSAY	A-144
SHELL CANADA LTD.	CORUNNA	A-145
STANLEY HARDWARE	NEW HAMBURG	A-150
STELCO INC., LAKE ERIE WORKS	NANTICOKE	A-154
SUNCOR SUNOCO GROUP	SARNIA	A-158
TEND-R-FRESH POULTRY LTD.	PETERSBURG	A-160
TEXACO CANADA INC., NANTICOKE REFINERY	JARVIS	A-162
THE CANADIAN SALT COMPANY LTD.	WINDSOR	A-164
WICKES MANUFACTURING CO. LTD.	WINDSOR	A-168
LAKE ONTARIO ... (includes Niagara River)		
ATLAS STEEL COMPANY LTD.	WELLAND	A-9
BEAVER WOOD FIBRE COMPANY LTD.	THOROLD	A-11
B.F.GOODRICH	NIAGARA FALLS	A-12
BTL SPECIALTY RESINS	BELLEVILLE	A-16
CAMECO (form. Eldorado Nuclear Ltd.)	PORT GRANBY	A-18
CAMECO (form. Eldorado Nuclear Ltd.)	PORT HOPE	A-19
CAMECO (form. Eldorado Nuclear Ltd.)	WELCOME	A-20
CAMPBELL'S WELLINGTON MUSHROOM FARM	WELLINGTON	A-22
CANADIAN CANNERS LTD.	ST. DAVIDS	A-23
CANADIAN OXY-DUREZ	FORT ERIE	A-24
CELANESE CANADA INC.	TWP. OF ERNESTOWN	A-29
CYANAMID CANADA INC. (Niagara Plant)	NIAGARA FALLS	A-35
CYANAMID CANADA INC. (Welland Plant)	NIAGARA FALLS	A-36
DOFASCO INC.	HAMILTON	A-42
DOMTAR FINE PAPERS	ST.CATHARINES	A-47
DOMTAR PACKAGING	TRENTON	A-49
DOMTAR WOOD PRESERVING	TRENTON	A-50
DUPONT CANADA LTD.	KINGSTON TOWNSHIP	A-53
EXOLON	THOROLD	A-61
FLEET MFG. COMPANY LTD.	FORT ERIE	A-70
FORD MOTOR COMPANY	NIAGARAFALLS	A-71
FORD MOTOR COMPANY	OAKVILLE	A-72
FRASER INCORPORATED	THOROLD	A-75

APPENDIX C ...continued

LIST OF SOURCES BY MAJOR WATERSHED BASIN

Company	Location	Page
G. E PLASTICS LTD., (form. Borg-Warner Chemicals)	COBOURG	A-77
GENERAL MOTORS OF CANADA LTD.	ST. CATHARINES	A-79
KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	A-96
LAKE ONTARIO CEMENT.	PICTON	A-102
LAFARGE CANADA LTD.	BATH	A-103
NORTON COMPANY	NIAGARA FALLS	A-116
ONTARIO HYDRO TGS., Lakeview	TORONTO	A-124
ONTARIO HYDRO (NPGS A + B)	PICKERING	A-129
ORENCO (Ontario Rendering)	DUNDAS	A-131
PETRO-CANADA PRODUCTS CO. (CLARKSON)	MISSISSAUGA	A-132
PETRO-CANADA PRODUCTS INC.	OAKVILLE	A-133
QUEBEC AND ONTARIO PAPER COMPANY LTD.	THOROLD	A-138
SHERWOOD POULTRY FARMS	DUNDAS	A-147
STELCO INC.	HAMILTON	A-153
STELCO PAGE HERSEY	WELLAND	A-155
STELCO WELLAND TUBES	WELLAND	A-156
STRATHCONA PAPER COMPANY	TWP OF CAMDEN EAST	A-157
TEXACO CANADA INC.	PORT CREDIT	A-161
TRENT VALLEY PAPERBOARD MILLS	GLEN MILLER	A-165
WASHINGTON MILLS LTD. (form. SOHIO)	NIAGARA FALLS	A-166
WASHINGTON MILLS LTD.	NIAGARA FALLS	A-167
ST. LAWRENCE RIVER		
AULT FOODS LTD.	WINCHESTER	A-10
CASCO INC.	CARDINAL	A-28
C-I-L LTD.	CORNWALL	A-31
CORNWALL CHEMICALS LTD.	CORNWALL	A-33
COURTAULDS LTD. & BCL LTD.	CORNWALL	A-34
DOMTAR FINE PAPERS	CORNWALL	A-46
DUPONT CANADA INC.	MAITLAND	A-54
KRAFT LTD.	INGLESIDE	A-98
NITROCHEM	MAITLAND	A-111
ROHM AND HASS	CORNWALL	A-143
STANCHEM	CORNWALL	A-149

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LIST OF SOURCES BY MAJOR WATERSHED BASIN

Company	Location	Page
OTTAWA RIVER		
AGNICO EAGLE MINES LTD. (Penn Mill)	COBALT	A-5
AGNICO EAGLE MINES LTD. (Refinery)	COBALT	A-6
DOFASCO INC. - Adams Mine	KIRKLAND LAKE	A-43
EASTMAQUE GOLD MINES	KIRKLAND LAKE	A-55
E. B. EDDY FOREST PRODUCTS LTD.	OTTAWA	A-57
GOLDEN SHIELD RESOURCES - KERR DIVISION.	VIRGINIATOWN	A-82
HALEY INDUSTRIES	HALEY	A-83
LAC MINERALS (Macassa Division)	KIRKLAND LAKE	A-100
MCBEAN MINES LTD.	DOBIE	A-107
NESTLE ENTERPRISES LTD.	CHESTERVILLE	A-110
REXWOOD PRODUCTS LTD.	NEW LISKEARD	A-139

APPENDIX D
SOURCES IN MISA INDUSTRIAL SECTORS

0100 PETROLEUM REFINING

Esso Petroleum Canada, a Division of Imperial Oil Ltd.	Sarnia
Petro-Canada Inc., (Clarkson)	Mississauga
Petro-Canada Inc., (Trafalgar)	Oakville
Petrosar Limited.	Sarnia
Suncor Inc., Sunoco Division	Sarnia
Shell Canada Products Ltd.	Corunna
Texaco Inc, (Nanticoke Refinery)	Jarvis
Texaco Inc, (Port Credit Refinery)	Mississauga

0200 ORGANIC CHEMICAL MANUFACTURING

AKZO Chemicals	Sarnia*
BASF Canada Inc.	Sarnia*
B.F Goodrich Canada Inc.	Niagara Falls
BTL Specialty Resins, A Division of Bakelite Thermosets Ltd.	Belleville
CanadianOxy Chemicals Ltd.	Fort Erie
Celanese Canada Inc.	Millhaven
Chinook Chemicals	Sombra*
Cornwall Chemicals Limited	Cornwall
Courtaulds Fibres Canada, A Division of Courtaulds Fibres Inc.	Cornwall
Courtaulds Films Canada, A Division of International Paints (Canada) Ltd.	Cornwall
Domtar Inc., Longford Mills	Longford Mills
Dow Chemical Canada Inc.	Sarnia
Du Pont Canada Inc.	Corunna
Du Pont Canada Inc.	Kingston
Du Pont Canada Inc.	Maitland
Esso Chemical Canada, a Division of Imperial Oil Ltd.	Sarnia
Ethyl Canada Inc.	Corunna
G. E. Plastics Ltd. (form. Borg-Warner (Canada) Limited)	Cobourg
Novacor Chemicals Ltd.,	Mooretown
Polysar Limited.	Sarnia
Rohm and Haas Canada Inc.	Morrisburg*
Uniroyal Chemical Ltd.	Elmira*

* to be included in future reports

0300 PULP AND PAPER

Abitibi-Price Inc. (Iroquois Falls Divsion)	Iroquois Falls
Abitibi-Price Inc., (Ft. William Divsion)	Thunder Bay
Abitibi-Price Inc., (Provincial Papers Divsion)	Thunder Bay
Abitibi-Price Inc., (Thunder Bay Divsion)	Thunder Bay
Beaver Wood Fibre Company	Thorold
Boise Cascade Ltd.	Fort Frances
Boise Cascade Ltd.	Kenora
Canadian Pacific Forest Products Ltd.	Thunder Bay
Canadian Pacific Forest Products Ltd.	Dryden
Domtar Inc. (Fine Papers Division)	Cornwall
Domtar Inc. (Fine Papers Division)	St. Catharines
Domtar Inc. (Containerboard Division)	Trenton
Domtar Inc. (Containerboard Division)	Red Rock
E.B. Eddy Forest Products Ltd.	Espanola
E.B. Eddy Forest Products Ltd.	Ottawa
James River Marathon Ltd.	Marathon
Kimberly-Clark of Canada Ltd.	St. Catharines
Kimberly-Clark of Canada Ltd.	Huntsville
Kimberly-Clark of Canada Ltd.	Terrace Bay
MacMillan Bloedel Ltd.	Sturgeon Falls
Malette Inc., Malette Kraft Pulp and Paper Division	Smooth Rock Falls
Noranda Forest Inc. (Fraser Inc.)	Thorold
Spruce Falls Power and Paper Co. Ltd.	Kapuskasing
St. Mary's Paper Inc.	Sault Ste. Marie
Stratcona Paper Company	Camden East Twp.
Quebec and Ontario Paper Company Inc.	Thorold
Trenton Paperboard Industries Corporation, Trent Valley Paperboard Mills Division	Napanee
Roman Corporation Limited	

0400 METAL MINING AND REFINING

Agnico Eagle Mines Ltd., (Silver Division)	Cobalt
Agnico Eagle Mines Ltd., (Refinery)	Cobalt
Agnico-Eagle Mines Ltd. (Leroy Project)	Gowganda *
Agnico-Eagle Mines Ltd. (Penna Mine)	Coleman Twp. *
American Barrick Resources Corp.	Harker Twp. *
Associated Porcupine Mines Limited, Paymaster	South Porcupine *
Ateba Mines Limited,	Beardmore *
Ateba-Roxmark Joint Venture, Magnet Mine	Errington Twp. *
Bond Gold Mines Limited, Broulan Reef	Timmins *
Belmoral Mines Ltd.	Timmins *
CAMECO	Port Hope
CAMECO	Port Granby
CAMECO	Welcome
CAMECO	Blind River
Canamax Resources Inc., Bell Creek Mine	Timmins
Canamax Resources Inc., Krezar Mine	Finan Twp. , *
Canamax Resources Inc., Marhill	Timmins *
Citadel Gold Mines Inc.	McMurray Twp. *
Denison Mines Ltd., (Stollery Lake)	Elliot Lake
Denison Mines Ltd., (Stanrock)	Elliot Lake
Denison Mines Ltd., (Williams Lake)	Elliot Lake
Detour Lake Mines Ltd.	Timmins
Dicken Mine Ltd., (Arthur W. White Mine)	Township Golden
Domtar Chemicals Ltd.	Goderich
Eastmaque Gold Mines	Kirkland Lake
Falconbridge Ltd.	Falconbridge
Falconbridge Ltd.,Kidd Creek Mines Ltd., (Metalurgical Site)	Timmins
Falconbridge Ltd.,Kidd Creek Mines Ltd., (Mine Site)	Timmins
Falconbridge Ltd., (Lockerby Mine)	Falconbridge
Falconbridge Ltd., (Moose Lake)	Falconbridge
Falconbridge Ltd., (Onaping Mine)	Onaping Falls
Giant Yellowknife Mines Ltd., Aunor-Denite	Timmins *
Giant Yellowknife Mines Ltd., ERG Resources	Timmins *
Giant Yellowknife Mines Ltd., Pamour #1	Timmins

* to be included in future reports

APPENDIX D... continued

0400 METAL MINING AND REFINING continued ....

Giant Yellowknife Mines Ltd., Pamour-Schumacher	Timmins
Giant Yellowknife Mines Ltd., Ross Mine	Timmins *
Granges Exploraqtion Limited, Mishibishu Lake	Wawa *
Hemlo Gold Mines Ltd., Golden Giant Mine	Hemlo *
Golden Shield Resources (Kerr Addison Mine)	Virginiatown
Inco Limited, (Copper Cliff Creek Nickel Refinery)	Sudbury
Inco Limited, (Copper Cliff Creek Treatment)	Sudbury
Inco Limited, (Crean Hill)	Sudbury
Inco Limited, (Frood Stobie Emerg. Tailings Area)	Sudbury
Inco Limited, (Garson Mine)	Sudbury
Inco Limited, (Levack Tailings Area)	Sudbury
Inco Limited, (Nolin Creek)	Sudbury
Inco Limited, (Whistle)	Sudbury*
Inco Metals Limited , (not active in 1988)	Shebandowan*
Inco Metals Limited.	Port Colborne
Kidd Creek Mines Ltd., Owl Creek Mine	Timmins*
Lac D'Aminante Du Quebec Ltee.	Timmins
Lac Minerals, (Macassa Div.)	Kirkland Lake
Lac Minerals, Page Williams Mine	Hemlo
Madeleine Mines Ltd./Boise Minerals Inc.	Jaffray-Melick Twp.*
Mattabi Mines Ltd.	District of Kenora
Minnova Inc. Winston Lake Project	Schreiber
Muscocho Explorations Ltd., Majino Mine	Finan Twp. ,Goundreau*
Muscocho Explorations Ltd., Jerome Mine	Osway Twp. *
Muscocho Explorations Ltd., Magnacon Mine	Wawa *
Noranda Hemlo Inc.	Marathon
Noranda Inc. Lyon Lake Division	Thunder Bay District
Noranda Mines Ltd., (GECO Division)	Manitouwadge
Orofino Resources Ltd., Scadding Mine	Scadding Twp.*

* to be included in future reports

APPENDIX D... continued

0400 METAL MINING AND REFINING continued ....

Placer-Dome Inc., (Campbell Red Lake Mine)	Golden Township
Placer-Dome Inc., (Dona Lake MIne)	Pickle Lake*
Placer-Dome Inc., (Dome Mine)	South Porcupine
Renabie Gold Mines Ltd.	Renabie *
Rio Algom Ltd., (Lancor/Nordic)	Elliot Lake*
Rio Algom Ltd., (Panel Mill)	Elliot Lake
Rio Algom Ltd., (Pronto)	Elliot Lake*
Rio Algom Ltd., (Quirke Mill)	Elliot Lake
Rio Algom Ltd., (Stanleigh Mill)	Elliot Lake
Sherman Mine	Temagami
St. Andrew Gold Fields	Stock Twp. *
Teck-Corona Inc.	Marathon
The Algoma Steel Corp. Ltd., (Ore Div.)	Wawa
The Canadian Salt Company Ltd.	Windsor

0500 IRON AND STEEL

Atlas Steel Company Ltd.	Welland
Dofasco	Hamilton
Ivaco, (near Hawkesbury)	L'Orignal*
Lasco	Whitby*
Stelco Inc.	Hamilton
Stelco Inc., (Lake Erie Works)	Nanticoke
The Algoma Steel Corporation Ltd.	Sault Ste. Marie

* to be included in future reports

0600 ELECTRIC POWER GENERATION

Ontario Hydro, Atikokan TGS	Atikokan
Ontario Hydro, J.C. Keith TGS	Windsor*
Ontario Hydro, Lakeview TGS	Toronto
Ontario Hydro, Lambton TGS	Courtright
Ontario Hydro, Lennox TGS.	Fredericksburg
Ontario Hydro, Nanticoke TGS	Nanticoke
Ontario Hydro, R.L. Hearn TGS	Toronto*
Ontario Hydro, Thunder Bay TGS	Thunder Bay
Ontario Hydro, Darlington NGS	Bowmanville*
Ontario Hydro, Darlington Construction	Bowmanville*
Ontario Hydro, Bruce Nuclear, Power Development Services	Tiverton*
Ontario Hydro, Bruce Sewage Treatment Plant	Tiverton
Ontario Hydro, Bruce Heavy Water Plant	Tiverton
Ontario Hydro, Bruce Nuclear Waste Storage Site	Tiverton *
Ontario Hydro, Bruce Nuclear, NGS-A and NGS-B	Tiverton
Ontario Hydro, Pickering NGS-A and NGS-B	Pickering
Ontario Hydro, Aguasabon GS	Aguasabon River*
Ontario Hydro, Arnprior GS	Madawaska River *
Ontario Hydro, Decew NF 23 GS	Welland Canal *
Ontario Hydro, Pine Portage GS	Nipigon River *
Ontario Hydro, Silver Falls GS	Kaministikia River *
Ontario Hydro, Sir Adam Beck2 GS	Queenston*
AECL Douglas Point WMF	Tiverton*
AECL Nuclear Power Demonstration WMF	Rolphton*
AECL Chalk River Nuclear Laboratory	Chalk River*

0700 INORGANIC CHEMICALS

Albright and Wilson Americas	Dunnville*
Allied Chemicals Canada Inc.	Amherstburg*
Cabot Canada Ltd.	Sarnia*
Columbian Chemicals Canada Ltd.	Hamilton*
CIL Inc.	Courtright
CIL Inc. (Chlor Alkali and CONPAC Facilities)	Cornwall
Cyanamid Canada Inc., (Niagara Plant)	Niagara Falls
Cyanamid Canada Inc., (Welland Plant)	Niagara Falls

* to be included in future reports

0700 INORGANIC CHEMICALS ....continued

Explosives Technologies International, (formerly Du Pont Canada)	North Bay
Fiberglas Canada Inc.	Sarnia
General Chemical Canada Ltd.	Amherstburg
IMC Corporation	Dunnville
Nitrochem Inc.	Maitland
Norton Canada Inc.	Niagara Falls
Partek Insulations Ltd.	Sarnia*
Sulco Chemicals Ltd.	Elmira*
The Exolon-ESK Company of Canada Ltd.	Thorold
Union Carbide Canada Ltd.	Welland *
Washington Mills Limited	Niagara Falls
Washington Mills, (Electro Minerals Corporation)	Niagara Falls
Welland Chemical Ltd.	Sarnia*

0800 METAL CASTING

A.H. Tallman Bronze Ltd.	Burlington*
Alloy Casting Industries Ltd.	New Hamburg*
Armada Toolworks Limited	West Hill *
Bibby - St. Croix Foundries Ltd.	Cambridge*
Birla Industries Inc.	Windsor*
Bowmanville Foundry Co. Ltd.	Bowmanville*
Brampton Foundries Limited	Brampton
Canron Inc. Pipe Div.	Hamilton *
Chrylser Canada Ltd.	Etobicoke*
Crowe Foundry Ltd.	Cambridge*
Designed Precision Castings Inc.	Brampton *
Dunbar Aluminum	Kitchener*
Electroline Manufacturing Company Ltd.	Windsor*
Falconbridge Limited	Orillia *
Fahramet	Orillia*
Ford Motor Co. of Canada Ltd.	Windsor
Franklin Electric of Canada Ltd.	Strathroy *
General Motor of Canada Ltd.	St. Catharines
Haley Industries Ltd.	Haley*

* to be included in future reports

0800 METAL CASTING continued....

Industrial Fine Castings Limited	Bolton *
Johnson Matthew Ltd.	St. Catharines*
Magalloy Ltd.	Stratford *
Richmond Die Casting Co. Ltd.	Cornwall*
Western Foundry Co. Ltd.	Wingham*
Wilcon Products Division	Maple*

0900 INDUSTRIAL MINERALS (TENTATIVE LIST)

3M Canada.	Havelock*
Allan G. Cook Ltd.	Alliston*
Allan W. Richmond	Drummond Twp.*
Amherst Quarries (1969) Ltd.	Amherstburg*
Arriscraft Corporation	Cambridge*
A.L. Blair Const. Ltd.	Russel Twp.*
A.L. Blair Const. Ltd.	Kenyon*
A.L. Blair Const. Ltd.	Finch Twp. *
A.L. Blair Const. Ltd.	Osanbruck Twp.*
A.L. Blair Const. Ltd.	Charlottenburgh*
A.L. Blair Const. Ltd.	Roxborough Twp.*
Barry Forbes	Mountain*
Beachvilime Ltd.	Beachville*
Beaver Asphalt Paving Co. Ltd.	Ottawa*
Bertrand and Frere Construction Co.	L'Original*
Bertrand & Frere Construction Co.	Prescott*
Bertrand & Frere Construction Co.	St. Isadore*
Blair Construction Ltd.	N. Plantagenet*
Brampton Brick	Brampton*
B&M Carriers Ltd Quarry	N. Plantagenet*
Canada Brick.	Cooksville*
Canada Brick.	Gloucester*
Canada Brick.	Burlington*
Canada Brick.	Streetsville8
Canada Talc. Madoc,	Mamora*

* to be included in future reports

APPENDIX D... continued

0900 INDUSTRIAL MINERALS continued ...

Canadian Gypsum Company	Haggersville*
Cayuga Materials and Construction	Cayuga*
Cedarhurst Quarries and Crushing Ltd.	Coboconk*
Cornwall Sand & Gravel	Cornwall*
Cruikshank Construction Ltd.	Morrisburg *
Dechan Construction Ltd.	Beckwith Twp.*
Dibblee Construction Ltd.	Ottawa*
Dibblee Construction Ltd.	Kingston*
Dibblee Const. Ltd.	Cornwall*
Domtar Construction Materials	Caledonia*
Dufferin Aggregates	Milton*
Dunnville Rock Products Ltd.	Dunnville*
Durham Stone and Paving	Durham*
Dymond Clay Products Ltd.	Haileybury*
E.C. King Contracting	Sydenham Twp.*
Fetterly's Quarry Division	Matilda*
Flamboro Quarries Ltd.	Dundas*
Francon, Div.of Lafarge Canada, Inc.	Ottawa *
Frank Kling Ltd.	Seaforth*
Frontenac Aggregates & Const.	Kingston*
Frontenac Aggregates & Const.	Amherstview*
George Kennedy	West Carlton*
George Wimpy	Nepean*
George W. Drummond Ltd.	Nepean*
Glengarry Aggregates & Concr.	Green Valley*
Gormley Aggregates Ltd.	Buckhorn*
Gormley Aggregates Ltd.	Carden Township*
Griffen Brothers Ltd	Joyceville*
Griffen Brothers Ltd.	Battersea*
Griffen Brothers	Kingston*
Guelph Dolime Ltd.	Guelph*
G. Tackaberry & Sons Constr.	Elizabethtown*
Halton Crushed Stone	Milton*
Hard Rock Paving Co. Ltd	Welland*
Highland Creek Sand & Gravel (Gormley Aggr.)	Manvers Twp.*

* to be included in future reports

APPENDIX D... continued

0900 INDUSTRIAL MINERALS continued ...

H. J. McFarland Construction Co.	Belleville*
H. J. McFarland Construction Co.	Nepean8
H.J. McFarland Const. Co.	Clarence Twp.*
Indusmin	Blue Mountain*
Indusmin	Rolphton*
James Dick Aggregates	Brechin*
Kam Aggregates	Kaninistiquia*
Lafarge Canada Inc.	Bath
Lafarge Canada Inc.	Woodstock*
Lake Ontario Cement	Picton
Lempiala Sand and Gravel Ltd.	Thunder Bay*
Leslie Cruikshank	Kenyon Twp.*
Leslie Cruikshank	Lancaster*
Luzenac Inc.	Penhorwood Twp.*
Malcom Grant	Kenyon*
Markham Sand and Gravel	Brechin*
Markham Sand and Gravel	Sophiasburg Twp.*
Milton Limestone (LAC Minerals)	Milton*
M. J. Labelle Co. Ltd.	Moosone8
Nelson Aggregate Co.	Burlington*
Nelson Aggregate Co.	Uhthoff*
Nelson Granite	Vermilion Bay*
Nomad Sand and Gravel Ltd.	Woodstoc*
Norfolk Quarries Company, Trent Val. Sand&Stone	Trent VAlle*
Oxford Sand and Gravel Ltd.	Woodstoc*
Permanent Concrete (Brockville)	Elizabethtown*
Permanent Concrete (Cornwall)	Cornwall*
Permanent Concrete (Hawthorne)	Gloucester*
Permanent Concrete (Navan)	Gloucester*
Permanent Concrete (Orleans)	Ottawa*
Permanent Concrete (Selby)	Napanee*
Permanent Concrete (Violet Road)	Kingston*
Port Colborne Quarries	Port Colborne*
Precious Purple Gemstones Ltd.	McTavish Twp.*
Reiss Lime Co. of Canada Ltd.	Blind River*

* to be included in future reports

APPENDIX D... continued

0900 INDUSTRIAL MINERALS continued ...

Robert C. Lyle	Ramsay*
R.E. Law Crushed Stone Ltd.	Stoney Creek*
R.S. Hardy Road Builders	Younge*
R.W. Tomlinson Ltd.	Nepean*
Seeley & Arnill Aggr. Ltd.	Duntroon*
Sittler Excavating Ltd.	Woolwich Twp. *
Smiths Construction Co Arnprior Ltd	Arnprior8
Spratt Sand and Gravel Ltd.	Gloucester*
Standard Aggregates	Brechin*
Standard Aggregates	Guelph*
Standard Aggregates	Haggersville*
Standard Aggregates Inc.	Gore Bay*
Stanley Dillabough	Mountain*
Steeprock Calcite	Tatlock*
Steetley Industries	Dundas*
Steetley Quarry Products Inc.	Flamborough*
Steetly Quarry Products Inc.	Thorold*
Stelco Chem. Lime Works	Ingersoll*
St. Lawrence Cement	Mississauga*
St. Lawrence Cement Inc.	Colborne*
St. Marys Cement	Bowmanville*
St. Marys Cement	St. Marys*
Taro Aggregates Lmt.	Stoney Creek*
Thomas Cavanagh Construction Ltd.	Ashton8
Timminco Ltd. (Metals Div.)	Haley Station*
Twp. of S. Plantagenet	S. Plantagenet*
United Aggregates	Ottawa*
United Aggregates	Acton*
Vicdom Sand & Gravel Ltd.	Brechin*
Walker Industries	Vineland*
Walker Industries	Vineland*
Walker Industries	Thorold*
Warren Paving & Materials	Gloucester*
Warren Paving & Materials	Nepean*
Warren Paving & Materials	Alfred Twp.*

* to be included in future reports

APPENDIX D... continued

0900 INDUSTRIAL MINERALS continued ...

Warren Paving & Materials	Montaque*
Warren Paving & Materials	Lochiel Twp.*
Waterford Sand & Gravel Ltd.	Stoney Creek*
West Carlton Sand	West Carlton*
Westroc Industries Ltd.	Drumbo*
Wm. J. McKendry & Sons Ltd.	Kingston*
Wm. J. Mckendry & Sons Ltd.	Kingston*
Woods Sand and Gravel Ltd.	*

* to be included in future reports

METAL PLATING AND PLASTIC FABRICATORS

American Standard Division of Wabco Standard	Cambridge
Blackstone Industrial Products	Stratford
Fleet Manufacturing Company Ltd.	Fort Erie
Ford Motor Company of Canada Ltd.	Niagara Falls
GNB Batteries Canada Ltd.	Fort Erie
Mitsubishi Electronics Ltd.	Midland
Stanley HardwareDiv. of Stanley Canada Inc.	New Hamburg
Stelco Page Hersey Works	Welland
Stelco Welland Tube Works	Welland
Wickes Manufacturing Co. Ltd.	Windsor

FOOD PROCESSORS

Campbell Soup Company Ltd.	St. Marys
Canadian Canners Ltd.	St. David
CASCO. Ltd.	Cardinal
Champlain Industries Ltd.	Tara
Corby Distilleries Limited	Corbyville
Gay Lee Foods Cooperative Ltd.	Teeswater
H.J. Heinz Company of Canada Ltd.	Leamington
J.M. Schneider Inc.	Ayr

APPENDIX D... continued

FOOD PROCESSORS continued...

Kraft Foods Ltd.	Ingleside
Nestle	Chesterville
Ogilvie Mills	Thunder Bay
Omstead Foods Ltd.	Wheatley
Rothsay Ltd.	Rothsay
Tend-R-Fresh Ltd., (Div. of Maple Leaf Mills)	Petersburg

Miscellaneous

Chesapeake and Ohio Railway Co. Ltd.	St. Thomas
Domtar Wood Preserving Ltd.	Trenton
Northern Wood Preserving Ltd.	Thunder Bay
Ford Motor Company of Canada Ltd.	Oakville
Ford Motor Company of Canada Ltd.	St. Thomas

APPENDIX E

POLLUTANTS AND THEIR SIGNIFICANCE

In the Great Lakes context, overall loadings are the important measure of potential impact. The pollutants monitored and controlled by the Ministry of the Environment fall into one of four major groups defined by the International Joint Commission: Physical (settleable and suspended solids, temperature); chemical (persistent toxics, non-persistent toxics and others); microbiological; and radiological. The Ontario Ministry of the Environment document, Rationale For The Establishment of Ontario's Water Quality Objectives, September, 1979, provides additional information on the significance of these pollutants.

E.1 PHYSICAL

Under quiescent conditions suspended solids settle to the bottom where they may destroy fish spawning grounds and smother benthic organisms -- the basic food for many fish. Suspended solids may also plug fish gills. Nonsettleable solids in water increase turbidity, which reduces light penetration and thus restricts phytoplankton production. Thermal discharges from electricity generating stations can, if too hot, act as a thermal barrier that prevents cold water fish from entering the receiving waters.

E.2 CHEMICAL

1. Persistent Toxics

Toxic substances are defined (G.L.W.Q.A. Article 1 (1)) as substances that "can cause death, disease, behavioural abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions or physical deformities in an organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances. Persistent toxics are defined (G.L.W.Q.A. Annex 12 (1)) as "a toxic substance with a half life in water greater than eight weeks". Half life means the time required for the concentration of the substance to diminish to one-half its original value in the water body.

Phthalic acid esters, including dibutyl phthalate, diphthalate and other phthalates, are found in the effluent of certain organic chemical manufacturing plants and are toxic to aquatic life. Polychlorinated Biphenyls (PCBS), are persistent in the environment and tend to accumulate in fish and sediments. PCB concentration limits in fish tissue protect birds and animals that eat the fish. The concentration of metals, including arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel and selenium, is controlled to protect aquatic life or drinking water. Fluoride levels in surface waters are also limited (to a concentration of 1.2 milligrams per litre) to protect drinking water.

2. Non-Persistent Toxics

Non-persistent toxics have a half life in water of less than eight weeks and include various types of oils and waxes as well as ammonia-nitrogen. Oil and petrochemicals cause a visible sheen and impart an odour in receiving waters. In addition, they taint edible aquatic life and often cause deposits on nearby shores. Hydrocarbons are discharged by petroleum refineries and primary steel plants; animal fats, greases and vegetable oils from food processors; and soaps, greases, vegetable oils and waxes from soap manufacturers.

Ammonia-nitrogen is found in the effluent of primary steel producers, ore concentrating mills, fertilizer plants, petroleum refiners, synthetic organic factories and food processors. Depending on water temperature and pH, ammonia-nitrogen dissociates in varying amounts, forming un-ionized ammonia which is toxic to aquatic life. Hydrogen sulphide at undissociated concentrations above 2.0 micrograms per litre adversely affects aquatic life and also imparts a disagreeable odour to water.

3. Other Substances

The concentration of dissolved oxygen in water is lowered by the oxygen-demanding degradation of biodegradable materials. If too much oxygen is consumed by the biodegradable effluent in the receiving waters (i.e. if the Biochemical Oxygen Demand or BOD is too great), aquatic organisms can be adversely affected.

Often Chemical Oxygen Demand or Total Organic Carbon are used in place of the BOD test.

Although phosphorus is essential to plant growth and microorganism activity, too much causes excess algae, weed and slime growth. Phenolics, a group of organic substances, can adversely affect the taste of water and fish. At certain concentrations, phenolics in steel mill effluent are toxic to aquatic life forms. Phenolic compounds occur naturally in wood, coal and crude oil.

E.3 MICROBIOLOGICAL

Water used for body contact recreation activities should be substantially free from bacteria, fungi, or viruses that may produce enteric disorders or eye, ear, nose, throat and skin infections or other diseases and infections. Where any industrial effluent contains simple sugars, these compounds serve as food for bacterial growth. For each situation, the source has been required to segregate and treat separately its sanitary wastes.

E.4 RADIOLOGICAL

Radioactive pollutants, most commonly found in the nuclear fuel industry, are toxic in certain concentrations. The IJC agreement sets a limit of TED 50 (total equivalent dose integrated over 50 years calculated in accordance with IJC methodology) greater than 1 millirem to the whole body from a daily ingestion of 2.2 litres of lake water per day for one year.

E.5 HAZARDOUS POLLUTANTS

Annex 10, G.L.W.Q.A. contains two lists of compounds. One list is titled Hazardous Polluting Substances; the other, Potential Hazardous Polluting Substances. Ten inorganic chlorides are classified as hazardous and three as potentially hazardous. Cobalt is extremely toxic to fish. Three cobalt compounds are classified as hazardous.

Magnesium, an essential element for plant and animal life, can cause a cathartic action on the gastro-intestinal tract when present in drinking water in concentrations over 125 milligrams per litre. Water containing this concentration may also have a disagreeable taste.

At concentrations above 250 milligrams per litre, sulphates in raw drinking water may cause a similar effect to excessive magnesium. Ten sulphate compounds are classified Hazardous and three, Potentially Hazardous.

APPENDIX F

FEDERAL AND PROVINCIAL GUIDELINES AND REGULATIONS

This appendix is a list of Federal and provincial guidelines and regulations used to set effluent requirements. Where the limit in the guideline or regulation is a concentration number, i.e. milligrams per litre, this limit has been converted into a loading limit (as used in Appendix A, where flows are available). Multiplying the concentration limit by the flow rate times a conversion factor results in a loading requirement or guideline number. The lists shown below are extracts from the respective document identified. For a more detailed description of the guidelines and regulations refer to the particular document listed.

F.1. Control Order or Requirement and Direction

- (discharge limits may be specified as requirements)

F.2 Certificate of Approval

- (discharge limits may be specified as requirements)

F.3 Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

Biochemical Oxygen Demand	15.0 mg/L maximum
Suspended Solids (Residue Particulate)	15.0 mg/L maximum
Oil and Grease (Solvent Extractables)	15.0 mg/L maximum
Metals	
- cadmium	0.001 mg/L maximum
- chromium	1.0 mg/L maximum
- copper	1.0 mg/L maximum
- lead	1.0 mg/L maximum
- mercury	0.001 mg/L maximum
- nickel	1.0 mg/L maximum
- phosphorus	1.0 mg/L max., or < 4.54 kg/day
- tin	1.0 mg/L maximum
- zinc	1.0 mg/L maximum

NOTE - Total quantity of metals discharged will also be considered and dilution with clean water streams to achieve the above concentrations is not acceptable.

Phenols	0.02 mg/L maximum
Ammonia (NH_3 as N)	10.0 mg/L maximum
pH	range of 5.5 to 9.5
Sulphates, Chlorides, Dissolved solids	Keep as low as possible, through best available, practicable technology.
Temperature	11 degrees Celsius maximum - above receiving water temperature.

F.4 Provincial Liquid Effluent Guidelines for the Petroleum Refining Industry (Provincial)

Oil and Grease (Solvent Extractables)		15.0 mg/L maximum
Phenols		0.02 mg/L maximum
Suspended Solids (Residue Particulate)		15.0 mg/L maximum
Ammonia (NH_3 as N)		10.0 mg/L maximum
Chemical Oxygen Demand (COD)		200 mg/L maximum *
pH		range of 5.5 to 9.5
Metals	- chromium	1.0 mg/L maximum
	- copper	1.0 mg/L maximum
	- lead	1.0 mg/L maximum
	- zinc	1.0 mg/L maximum
	- nickel	1.0 mg/L maximum

* Interim objective based on capability of current best practicable technology; may be revised as alternative technology becomes available and where indicated by demonstrated adverse effects on receiving water quality.

F.5 Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

Biochemical Oxygen Demand	15.0 mg/L maximum
Oil and Grease (Solvent Extractables)	15.0 mg/L maximum
Metals (excluding calcium, magnesium, potassium and sodium)	1.0 mg/L maximum
Cumulative concentration of copper, lead, zinc and nickel	1.0 mg/L maximum
Cadmium, mercury	Background concentration or less
pH	range of 5.5 to 10.6
Ammonia (NH_3 as N)	10.0 mg/L maximum
Phosphorus	1.0 mg/L max., or $<$ 4.54 kg/day
Arsenic	0.5 mg/L maximum
Cyanide	2.0 mg/L maximum
Phenols	0.02 mg/L maximum
Sulphates, dissolved solids -	Keep as low as possible using best practicable technology

F.6 Pulp and Paper Effluent Regulations, Ottawa 1972 (Federal)

Limits shown on the Wastewater Discharge Summary sheets and accompanying tables are from Control Orders and may be based on Federal Regulations. The limits are generally set on a site-specific basis. See Table 6 of this report. The table shows Biochemical Oxygen Demand and Total Suspended Solids limits for each mill in the report.

F.7 The Chlor-Alkali Mercury Liquid Effluent Regulations, Ottawa 1977 (Federal)

2.50 grams of mercury per tonne of a plant's reference production rate (normally the arithmetic mean of actual daily production of chlorine during the previous month, excluding days when there was no production).

APPENDIX F ...continued

F.8 Atomic Energy Canada Limited licence limits. (Federal)

AECL limits are set on a site-specific basis for specific parameters.

F.9 Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa 1977 (Federal) Authorized Levels of Substances

Item	Substance	Column I Maximum Authorized Monthly Arithmetic Mean Concentration	Column II Maximum Authorized Concentration in a Composite Sample	Column III Maximum Authorized Concentration in a Grab Sample
1	Arsenic	0.5 mg/L	0.75 mg/L	1.0 mg/L
2	Copper	0.3 mg/L	0.45 mg/L	0.6 mg/L
3	Lead	0.2 mg/L	0.3 mg/L	0.4 mg/L
4	Nickel	0.5 mg/L	0.75 mg/L	1.0 mg/L
5	Zinc	0.5 mg/L	0.75 mg/L	1.0 mg/L
6	Total Suspended Matter	25.0 mg/L	37.5 mg/L	50.0 mg/L
7	Radium-226	0.5 pCi/L	20.0 pCi/L	30.0 pCi/L
8	pH	6.0 minimum	5.5 minimum	5.0 minimum

Note: The concentrations are given as total values with the exception of radium-226 which is a dissolved value after filtration of the sample through a 3 micron filter.

The acceptable levels of substances in the Metal Mining Liquid Effluent Guidelines have the same numercial values as the authorized levels of deleterious substances prescribed in the Metal Mining Liquid Effluent Regulations.

F.10 Interim Pulp and Paper Effluent Guidelines, Ontario 1970

Concentration limits:

50 milligrams per litre for Total Suspended Solids
50 milligrams per litre for Biochemical Oxygen Demand

are acceptable on an interim basis for effluents from pulp and paper mills. Where a mill reduces the effluent volume by water conservation and by recycling, these concentrations may be expected.

F.11 Guidelines for the Control of Industrial Phosphorus Discharges In Liquid Effluents - Ontario (October 1976)

The effluent objective for industrial phosphorus discharges is 1 mg/l maximum total phosphorus. Plants with discharges of less than 4.54 kg/day total phosphorus are exempted from these guidelines.

APPENDIX G

ANALYSIS OF TRACE CONTAMINANTS

Great advances have been made in the field of contaminant analysis. In the 1950's, prevailing methods could measure effluent pollutants in the parts per thousand (or .01%) range. Methods have improved now so that some organic and most inorganic pollutants can be accurately identified and quantified in the parts per trillion range.

In the 1950's, an advance was made in organic chemical analysis with the commercial development of gas chromatographs (GC). The functions of a GC are as follows.

(a) Separation of a mixture of compounds into individual components (usually relies on the compound's physical and chemical nature, volatility, polarity, molecule size, etc.).
(b) Detection and quantification of each individual compound as it is eluted (the detector response is proportional to the concentration). However, the resolution for complex mixtures was limited and other confirmatory techniques like infrared analysis were needed.

In the mid 1960's, scientists developed ways of interfacing a mass spectrometer (MS) to a gas chromatograph. Thus, the MS became, in essence, a very specialized and highly sophisticated detector for the GC. With these two instruments coupled together, the individual compound separated by the GC enters the MS and a "finger-print" known as a mass spectrum is produced. This mass spectrum is compared with all those stored in a computer library associated with the instrument and if a match is found the compound is identified.

In the period between 1975 and 1980, GC/MS instrumentation advanced significantly, especially with regard to the computer search capabilities and libraries. The new instruments were programmed to allow rapid identification of an unknown compound by comparing its mass spectrum with over 30,000 organic compounds in a reference library.

GC/MS has been the major instrument used in various trace contaminant studies made by Ministry of Environment (MOE),Environment Canada (E.C.), U.S. Environmental Protection Agency (EPA), Petroleum Association for the Conservation of the Canadian Environment (PACE), American Petroleum Institute (API), National Council for Air and Stream Improvement of Pulp and Paper Industry of the USA (NCASI), Chemical Manufacturers Association (CMA) and others.

At the same time, methods such as atomic emission and atomic absorption spectrophotometry have been developed to permit rapid, sensitive, multi-element metal analysis.

For specific treated industrial effluents like those from Ontario's petroleum refineries, organic chemicals and the iron and steel industry, these advances in analytical methods have resulted in the identification and quantification of some organic compounds in the parts per trillion range.

Trace contaminant data included in MISA Pilot Site investigations and the Upper Great Lakes Connecting Channels Studies are as follows:

Source	Samples Taken		Data Report Release	Conven-tionals	Metals	Vola-tiles	Extract ables	Pesti-cides	PCBS
	Year	#							
St. Mary's Paper	1986	23	1989	x	x	x	x	-	x
	87-88	156	1989	x	x	x	x	x	x
Algoma Steel	1986	91	1989	x	x	x	x	-	x
	87-88	622	1989	x	x	x	x	x	x
CIL (Courtright)	1986	1	1988	x	x	x	x	-	x
Chinook Chemicals	1986	1	1988	x	x	x	x	-	x
DOW Chemical	1987	83	1989	x	x	x	x	-	x
	1988	27	1989	x	x	x	x	-	x
ESSO Petroleum	1985	1	Jan 1986	-	-	x	x	x	x
	1986	5	1988	x	x	x	x	-	x
ESSO Chemicals	1985	1	1988	-	-	x	x	x	x
	1986	1	1988	x	x	x	x	-	x
Ethyl Corp.	1986	5	1988	x	x	x	x	-	x
Dupont (Corunna)	1986	1	1988	x	x	x	x	-	x
Petrosar (Polysar)	1986	5	1988	x	x	x	x	-	x
Polysar	1987	41	1989	x	x	x	x	-	x
Shell Oil	1986	5	1988	x	x	x	x	-	x
Suncor	1985	1	1988	-	-	x	x	x	x
	1986	5	1988	x	x	x	x	-	x
Union Carbide (Corunna)	1986	3	1988	x	x	x	x	-	x
Lambton Generating	1986	1	1988	x	x	x	x	-	x
Ford (Windsor)	1985	5	1988	x	x	x	x	-	x
Wickes (Windsor)	1985	3	1988	x	x	x	x	-	x
General Chemical (Amherstberg)	1985	5	1988	x	x	x	x	-	x

Note: X means analysis was or will be done.
Not every sample was analyized for all contaminant groups.

Trace contaminant data are also found in the following Ministry of the Environment/Environment Canada reports (publication date) which summarize joint surveys carried out by both federal and provincial officials:

1. NRTC Appendix Report: Canadian Point Sources To The Niagara River Final Report on MOE and EPS 1981/82 Surveys (1985) (Published)

2. St. Clair River Pollution Investigation (Sarnia Area)
   Ministry of the Environment - Environment Canada
   (June 1986)

3. Preliminary Report - St. Clair River MISA
   Pilot Site Investigation - Vol 1, Parts I and II
   Ministry of the Environment
   (November 1987)
   G. Johnson (editor)

This report contains information on the following companies: DOW Chemical (1986 survey) and Polysar (Sarnia), (1986 survey).

4. Upper Great Lakes Connecting Channels Study
   - Point Source Survey
   Ministry of the Environment - Environment Canada
   (December - 1988)

This report contains information on the following companies: CIL (Courtright), Chinook Chemicals, DOW Chemical - (1985 survey), ESSO Petroleum/Chemicals, Ethyl Corp., DuPont (Corunna), Polysar (Sarnia) - (1985 survey), Petrosar, Shell Oil, Suncor, Union Carbide (Corunna), Lambton Generating Station, Ford (Windsor), Wickes Manufacturing (Windsor) and General Chemical (Amherstberg), St. Marys Paper (Sault Ste. Marie) and The Algoma Steel Corp. (Sault Ste. Marie) (1986 Survey).

5. Implementation of Recommendations of the
   1986 St. Clair River Pollution Investigation Report,
   Ontario Ministry of the Environment, Water Resources Branch
   and Environment Canada
   (February 1988)

Niagara River Improvement Project

The fundamental objective of the Niagara River Toxics Management Plan is to reduce the loadings of toxic chemicals to the Niagara River. The Declaration of Intent signed by four environmental agencies from United States, New York State, Canada and Ontario set a target of 50% reduction of persistent toxic chemicals of concern by 1996. Ten toxic substances have been selected for priority attention because they are present in the Niagara River/Lake Ontario ecosystem at unacceptably high levels. These toxic chemicals are found either in the Niagara River water column or in Lake Ontario sport fish at levels exceeding existing standards or criteria. Listed are the ten priority toxic chemicals that have been targeted for 50% reduction by 1996:

benz (a) anthracene
benzo (b) fluoranthene
benzo (k) fluoranthene
benzo (a) pyrene
hexachlorobenzene
mirex
PCBs
dioxin (2, 3, 7, 8 TCDD)
tetrachloroethylene
mercury

Of 16 facilities monitored in 1988-1989, ten are industrial sources and six are municipal.

The results of the 1988-1989 monitoring period are summarized below:

Of the ten industries, five showed "no detection" of any of the ten priority toxic contaminants listed above. These facilities are:

Atlas Speciality Steels - Welland
Cyanamid of Canada - Welland Plant
Cyanamid of Canada - Niagara Falls Plant
Washington Mills (formerly Sohio) - Niagara Falls
Norton Abrasives - Niagara Falls

For the remaining five industries, only three of the ten priority toxics were detected; mercury, tetrachloroethylene and hexachlorobenzene. The following list indicates the facilities at which these compounds were found:

Company	Contaminant		
	mercury	tetrachloroethylene	hexachlorobenzene
Fleet Manufacturing		x	
B. F. Goodrich	x		
CanadianOxy Chemicals Ltd. Durez Division	x		
Ford Glass Plant	x	x	
Stelco Welland Tube Works	x		x

For more information on levels of these contaminants and control measures underway, references should be made to the full report titled:

> Update Report - Priority Toxic Chemicals of Concern from Ontario Point Sources Discharging to the Niagara River 1988
> (June 1989, Environment Ontario)

APPENDIX H

Ontario Ministry of the Environment

Regional Offices

The Director
Southwest Region
985 Adelaide Street South
London, Ontario

The Director
West Central Region
119 King Street West
12th Floor
Hamilton, Ontario

The Director
Central Region
7 Overlea Blvd.
4th Floor
Toronto, Ontario
M4H 1A8

The Director
Southeastern Region
133 Dalton Street
P.O. Box 820
Kingston, Ontario

The Director
Northeastern Region
199 Larch Street
Sudbury, Ontario
P5E 5P9

The Director
Northwestern Region
435 James Street South
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

APPENDIX H ...continued

Ontario Ministry of the Environment

District Offices

Central Region

Halton-Peel District Office
1226 White Oaks Blvd.
Oakville, Ontario
L6H 2B9

Barrie District Office
12 Fairview Road
Barrie, Ontario
L4N 4P3

Peterborough District Office
139 George Street North
Peterborough, Ontario
K9J 3G6

Muskoka Haliburton District Office
Gravenhurst Plaza General Delivery
Gravenhurst, Ontario
P0C 1G0

Northeast Region

North Bay District Office
Northgate Plaza Suite 109,
1500 Fisher Street
North Bay, Ontario
P1B 2H3

Sudbury District Office
199 Larch Street, 11th floor
Sudbury, Ontario
P5E 5P9

Sault Ste. Marie District Office
445 Albert Street East
Sault Ste. Marie
P6A 2J9

Timmins District Office
83 Algonquin Blvd. W.
Timmins, Ontario
P4n 2R4

Northwest Region

Thunder Bay District Office
435 James Street South, 3rd floor
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

Kenora District Office
808 Robertson Street
Kenora, Ontario
P9N 1X9

Southeast Region

Cornwall District Office
205 Amelia Street
Cornwall, Ontario
K8H 3P3

Ottawa District Office
2378 Holly Lane 2nd floor
Ottawa, Ontario
K1V 7P1

Kingston District Office
P.O. Box 820
133 Dalton Avenue
Kingston, Ontario
K7L 4X6

Southwest Region

Sarnia District Office
265 Front Street
Sarnia, Ontario
N7T 7X1

Windsor District Office
6th floor - 250 Windsor Avenue
Windsor, Ontario
N9A 6V9

Owen Sound District Office
1180 - 20th Street
Owen Sound, Ontario
N4K 6H6

West Central Region

Haldimand/Norfolk Brant
Box 2112
119 King Street West, 9th floor
Hamilton, Ontario
L8N 3Z9

Hamilton District Office
Box 2112
119 King Street West, 9th floor
Hamilton, Ontario
L8N 3Z9

Cambridge District Office
P.O. Box 219, 400 Clyde Road
Cambridge, Ontario
N1R 5T8

Welland District Office
637 - 641 Niagara North
Welland, Ontario
L3C 1L9